LOWRANCE

HDS Gen2 Touch

Chartplotter Operator manual

ENGLISH

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Preface

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Warranty

The warranty card is supplied as a separate document.

In case of any queries, refer to the brand web site of your display or system: www.lowrance.com

Declarations and conformance

This equipment is intended for use in international waters as well as inland waters and coastal sea areas administered by countries of the USA, E.U. and E.E.A. For more information refer to the separate HDS Gen 2 Touch Installation manual.

About this manual

This manual is a reference guide for operating the Lowrance HDS Gen 2 Touch system. It assumes that all equipment is installed and configured, and that the system is ready to use.

The manual does not cover basic background information about how equipment such as radars and AIS work. Such information is available from our web site: www.lowrance.com/en/Support/Library/.

Important text that requires special attention from the reader is emphasized as follows:

➔ ***Note:*** Used to draw the reader's attention to a comment or some important information.

> ⚠ Warning: Used when it is necessary to warn personnel that they should proceed carefully to prevent risk of injury and/or damage to equipment/personnel.

The software

This manual is written for Lowrance HDS Gen2 Touch Release to Market 1 (RTM1). Please check web site for details on release version.

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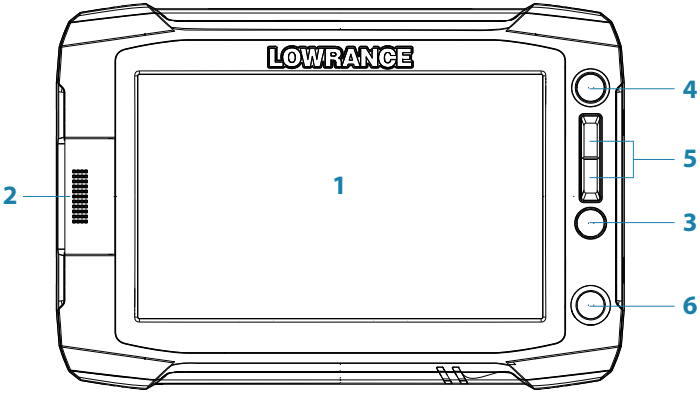
HDS Gen2 Touch screen and keys



1 Touchscreen

2 SD Card reader

Used for optional InsightHD, Navionics, other compatible third-party cartography, software updates, transfer of user data and system backup.

3 Waypoint key

A short press opens the waypoint menu. A long press opens the Find menu. Press the key twice to quickly save a waypoint.

4 Pages key

A short press displays the home screen. Repeated short presses toggles through favorite pages.

5 IN / OUT / MOB key

Zoom key for chart and radar pages. A simultaneous press on both keys will position a Man Overboard (MOB) waypoint at the vessel's position.

6 Power key

A long press turns the unit ON/OFF.

A short press brings up the backlight and power dialog. Repeated short presses toggles between preset brightness levels.

The HDS Gen2 Touch home screen

→ ***Note:*** video is only available on HDS Gen2 Touch 9" and 12" units. The radar option will only be shown when the unit is connected to a radar.

1 Utilities panel

Tap an icon to access utility data.

2 Favorites panel

Used to display Favorite pages, save new Favorites or clear previously configured pages.

3 Pages

Tap a page icon to view the page full screen. Press and hold a page icon to view quick split combo page options.

4 More

Tap to see the full menu.

5 Back button

Tap to exit the home screen and return to the previous page.

6 Local time

7 Water depth

1 Basic operation

The power key

	• Press and hold:	Turn unit on/off
	• Single press:	Display dialog for brightness adjustment, night mode, standby mode and power off
	• Repeated presses:	Toggle preset brightness levels (10 - 6 - 3- 1)

➔ ***Note:*** If the power key is released before shut-down is completed, the power off is cancelled.

A night mode which optimizes the color palette for low light conditions, is included.

➔ ***Note:*** Details on the chart may be less visible when Night mode is selected!

When in Standby mode, the backlight for touchscreen and keys are turned off to save power. The system will continue to run in the background. To switch from Standby mode to normal operation, press the power key.

First time startup

The device configuration dialog appears when you start up the unit for the first time. It will reappear at the next restart if you select **Maybe later**. Tap **Close** to manually configure settings.

Using the touchscreen

Basic touchscreen operation on the different pages is shown in the table.

The Pages section later in this manual has more information about page-specific touchscreen operation.

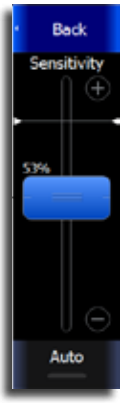
Operation	Menu/Dialogs	Pages	
		Chart	Radar
Tap	Select/toggle item	Activate cursor	
Press and hold	n/a	Activate cursor selection mode	
Drag	Adjust slider value Scroll dialog Hide page menu (Drag right)	Pan chart (any direction)	Move cursor

Menus

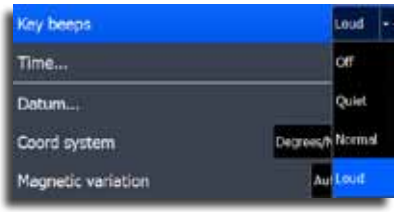
Menus are used to operate the system and to adjust settings.

- You select a menu item and toggle on/off menu check boxes by tapping the selected item.
- You adjust slider bar values by dragging your finger on the slide bar. Minor adjustments can be made by tapping above or below the slider bar.
- Drop-down menu items are selected by tapping the item and then the selected value.

Toggle menu



Slide bar



Dropdown menu

Page menus

Page menus for each operation mode are on the right side of the screen.

Page menus can be hidden to allow pages to be displayed full screen. Drag the menu to the right to hide the menu.

→ ***Note:*** When the cursor is active, some features on page menus will be replaced with cursor mode features.

Back button

You can return to the previous screen or menu by pressing the Back button.

Page menu

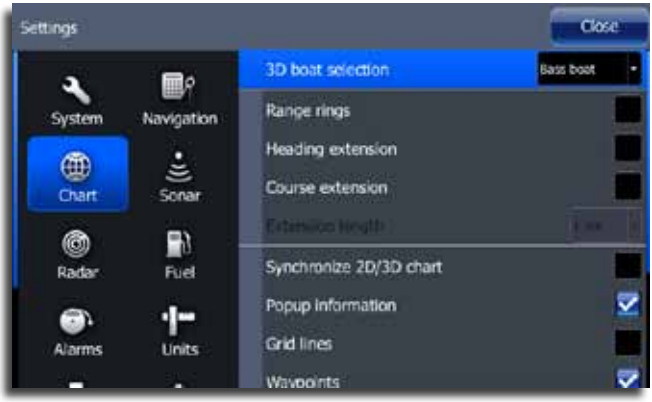
Hiding page menu

Hidden system menu

The page menu for each operation mode has a hidden system menu. To access the hidden system menu, place your finger on the top menu item and drag down.

Settings dialog

You can access the settings dialog for each operation mode from the hidden system menu or from the Utilities panel on the home screen.



Dialog boxes

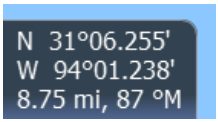
You select entry fields and keys in a dialog box by tapping the screen. You can only enter information when a field is selected and highlighted.

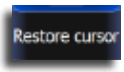
Some dialog listings might extend beyond the screen area. These dialogs will include a scroll indicator, and you scroll by dragging the list. A dialog is closed by tapping the **Close** button.

Numeric and alphanumeric keyboards will automatically be displayed when required for entering user information in dialogs.

A virtual keyboard is operated by tapping the virtual keys.

Using the cursor





The cursor is by default not shown on any page. Tap the screen to activate the cursor on the chart and radar pages. The cursor information window will show position coordinates at the cursor position and range and bearing to the vessel.

To remove the cursor and cursor window from the page, tap the **Clear cursor** button.

On the Chart page, tap **Restore cursor** to display the cursor in its previous location. Restore cursor is a useful feature for toggling between your current boat location and the cursor position.

Panning

You can pan the chart by dragging your finger in any direction.

Cursor assist mode

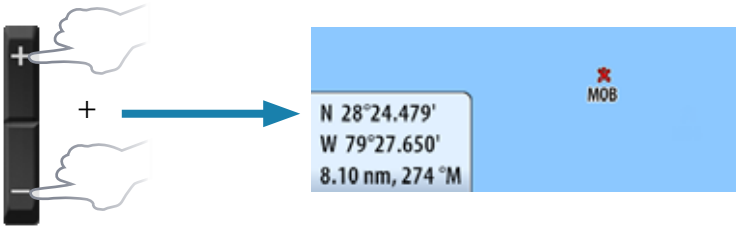
Press and hold your finger on the screen to switch the cursor to selection mode. The selection tool will appear above your finger. Drag the selection tool over the desired item.

Positioning a Man Overboard waypoint

If an emergency man overboard situation should occur, you can position a Man Overboard waypoint at the vessel's current position by pressing both zoom keys simultaneously.

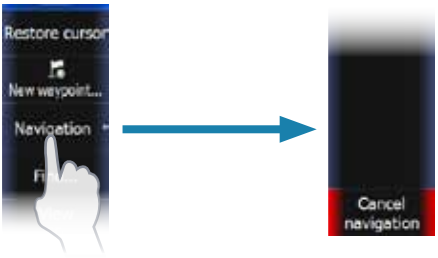
When you activate the MOB function the following actions are automatically performed:

- a MOB waypoint is positioned at the vessel's position
- the display switches to a zoomed chart page, centered on the vessel position
- the unit displays navigation information back to the MOB waypoint



Cancel navigation

The unit will continue navigating toward the MOB waypoint until the waypoint is reached or until you cancel navigation.



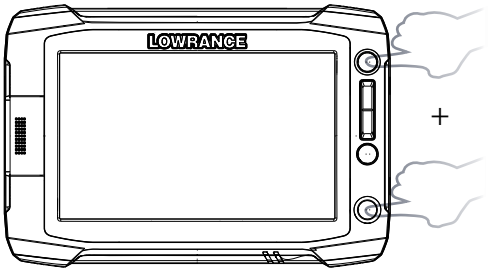
Delete a MOB waypoint

1. Cancel navigation.
2. Tap **Waypoint MOB** on the page menu.
3. Tap **Delete**.

Screen capture

Simultaneously press and hold the **PAGES** and **POWER** keys to take a screenshot. By default, screen captures are saved to internal memory.

Refer to the Utilities section of this manual for information on viewing screen captures and saving files to a SD card.



2 Pages

Page overview

This unit supports up to 7 page types. Each has a corresponding group of preconfigured quick split combo pages.

Quick splits are two-panel combination pages featuring the selected page combined with each of the other pages. Quick splits can not be modified, but you can select/save your own page combination using the Favorites feature. You can save up to 10 favorites. Pages, quick splits and favorites are all accessed from the homescreen.

➔ ***Note:*** Video is available only on 9" and 12" units. The radar option will only be shown when the unit is connected to a radar.

➔ ***Note:*** Sonar and/or Structure icons will only appear on the homescreen when the unit is connected to a sonar and/or Stucture source via an Ethernet connection.

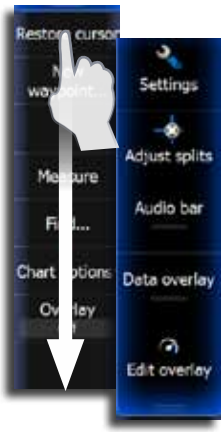
Selecting pages, quick splits

Tap a page icon to view the page full screen. Press and hold a page icon to view quick split combo page options.

Selecting Active panel

You can change active panels by tapping the desired panel. The active panel will have an orange border.

Adjusting splits



The size of panels can be adjusted by tapping **Adjust splits** on the hidden system menu. Drag the adjustment button horizontally to resize the panels. Tap **Save** to confirm changes.

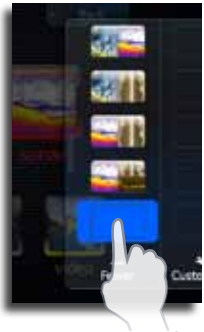
Customizing pages

Saving Favorites

You can save and edit Favorite pages from the page editor screen.

1. Tap an empty Favorites icon on the Favorites panel or tap **Customize** to modify an existing favorite
   - The Page editor panel will be displayed
2. Drag and drop page icons to set up your custom screen
3. Select a panel configuration
4. Save the page layout by tapping **Save**.

→ ***Note:*** Tap **Clear** to cancel changes and select a new panel configuration. Tap **Discard** to cancel changes and return to the homescreen.

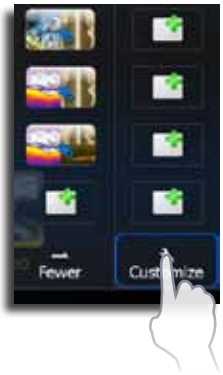


You can select from seven different panel configurations as illustrated below.

→ ***Note:*** You can cycle through favorite pages by pressing the **PAGES** key.

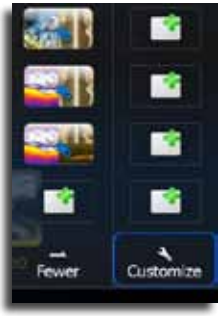
Editing favorites

1. Tap **Customize** on the Favorites panel
2. Tap an existing favorite
3. Drag a page icon from the preview
4. Tap **Save**



Deleting favorites

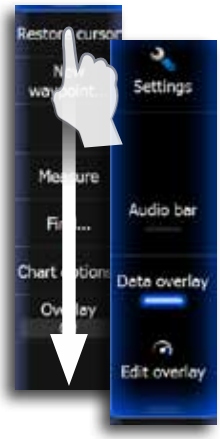
1. Tap **Customize** on the Favorites panel
2. Tap the page icon for the page you want to remove
3. Tap **Clear** and tap **Save**



Data Overlay

Allows you to overlay information on the active page. You can turn on/off viewing of overlay data and edit/add overlay data by accessing the hidden system menu from any page screen.

1. Access the hidden system menu
2. Tap **Edit overlay** and tap **Add**
3. Select a data category
4. Tap the data you want to overlay
5. Drag the overlay data into the desired position on the page
6. Tap **Save**



Customizing overlay data

You can toggle the overlay data type between an analog and digital display, select data size, and change previously configured data from the Edit overlay configuration menu.

3 Chart

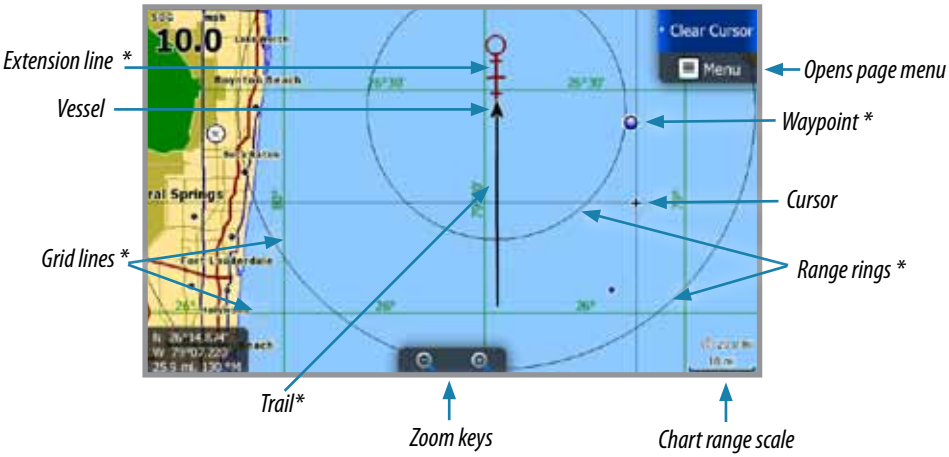
The chart page displays your position relative to land and other chart objects. On the page you can plan and navigate routes, place waypoints, overlay a radar image, a StructureMap image and weather information, and display AIS targets.

➔ ***Note:*** This unit has different embedded cartography depending on the region.

The first part of this section describes how to use the charts, and is common to both Insight and Navionics. Chart options depend on which cartography is in use on the unit.

The Chart page

* Optional chart items



➔ ***Note:*** You turn the optional images on/off individually. Refer to Chart settings later in this section.

Vessel symbol

When a GPS and a suitable heading sensor are connected to the system, the vessel symbol indicates vessel position and heading.

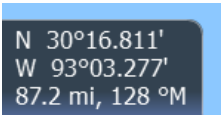
Without a heading sensor installed, the icon will position itself using COG (Course over Ground). If no GPS is available the vessel symbol will include a question mark.

Chart scale

You zoom in and out on the chart by using the **ZOOM** keys.

Chart range scale and range rings interval (when turned on) will be shown in the lower right corner of the chart panel.

Using the cursor on the chart page



The cursor is by default not shown on the chart page.

When you tap the screen, the cursor will become visible and the cursor position window will be activated. When the cursor is active, the chart will not follow the vessel.

Press and hold the screen to activate cursor assist mode. Cursor assist places the cursor above your finger and stops chart scrolling to allow for accurate placement of waypoints.

To remove the cursor and cursor window from the chart, tap **Clear cursor**. Tap the **Restore cursor** button to reactivate the cursor and cursor window.

Goto cursor

You can navigate to the cursor by tapping **Goto cursor** on the menu.

Panning the chart

You can move the chart in any direction by dragging your finger in any direction.

Tapping **Clear Cursor** will remove the cursor from the page, and the chart center will be positioned at the vessel.

Zooming

You zoom in/zoom out the chart by tapping the onscreen **Zoom** keys. You Zoom in to see less of the map with more detail; zoom out to see more of the map with less detail. You can also use the dedicated +/- keys to zoom.

No cursor

Chart menu

When the cursor is active, some features on the chart menu will be replaced with cursor mode features.

Tap **Clear cursor** to return to the normal chart menu.

Active cursor

Saving waypoints

When the cursor is not active, you can save a waypoint at the vessel position by tapping **New waypoint** on the chart menu.

Using the touchscreen to save a waypoint at the cursor:

1. Tap the desired location on the screen
2. Tap **New** on the chart menu
3. Tap **New waypoint** and tap **Save**

→ ***Note:*** You can also save a waypoint by pressing the dedicated **WAYPOINT** key twice. With the cursor active, the waypoint will be saved at the cursor position. When the cursor is inactive, the waypoint will be saved at the vessel position.

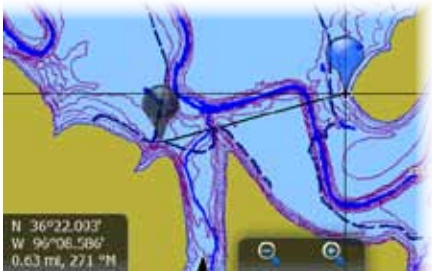
Creating routes

You can quickly create routes on the chart page.

1. Tap the screen to activate the cursor
2. Tap **New** on the menu
3. Tap **New route**
4. Tap the screen to position the first routepoint. Tap the screen to place more routepoints
5. Save the route by tapping **Save** on the menu

Measuring distance

The cursor can be used to measure the distance between your vessel and a selected position, or between two points on the chart.



➔ ***Note:*** To measure distance from your vessel, tap the desired location on the map and the distance to that location will be shown in the info box in the lower left corner of the screen.

1. Tap the screen and then tap **Measure** on the menu

- The measuring icons will appear with a line drawn from the vessel center to the cursor position, and the distance will be listed in the info box.

2. Drag one of the map pins to the desired point. The distance between the two points will be shown in the info box.

   You can turn off the measuring function by tapping **Finish measuring** on the menu.

➔ ***Note:*** You can use the measure function in conjunction with cursor assist mode to accurately position the map pins.

Find

You can search for items on the chart by using the Find feature. Tap the desired location on the screen to search from the cursor position. Clear the cursor from the screen to search from the vessel position.

➔ ***Note:*** You must have a SIRIUS data package subscription to search for Fueling stations and an AIS receiver to search for vessels.

Chart options

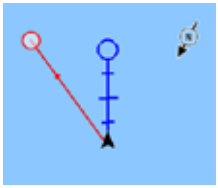
Orientation

Several options are available for how the chart is rotated on the page. The chart orientation symbol in the upper right corner of the page indicates the north direction.

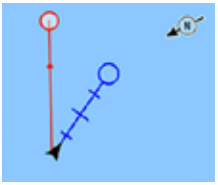
North up

Displays the chart with the north direction upward. Corresponds to the usual orientation of nautical charts.

North up



Heading up



Course up

Heading up

Displays the chart with the vessel's heading directly up on the chart image. Heading information is received from a compass. If heading is not available, then the COG from the GPS will be used.

Course up

Rotates the chart in the direction of the next point when in navigation mode. If the unit is not in navigation mode the heading up orientation will be used until you start navigating

Look ahead

This option centers the chart slightly forward of your vessel so you can maximize your view ahead.

View 2D, 3D

You can toggle the view on the chart between 2D and 3D by tapping the View button.

3D chart view options

There are two 3D views available:

- Rotate - default mode keeping the boat in center on the chart panel
- Pan - allows you to move the 3D chart view away from the vessel

You toggle between these two modes by pressing **Camera** on the menu or by tapping the pan and rotate icons at the top of the screen.

Rotate mode

In this mode the camera follows the vessel. The vessel's position will be in center if Look Ahead is not selected.

The camera angle is by default as seen from your eye position, looking toward the vessel. The vessel's rotation on the chart is defined by the chart orientation settings.

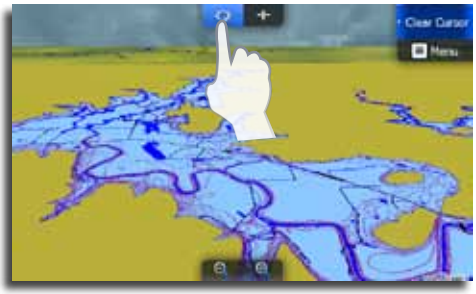


Chart tilted in rotate mode

You can change the camera tilt angle and rotate the camera around the vessel by dragging your finger on the screen.

➔ ***Note:*** When in rotate mode, use horizontal motions to rotate the vessel. Use vertical motions to change the viewer perspective.

When rotate is selected the camera position is fixed, and the camera can only be rotated and tilted. You rotate and tilt the camera by tapping and dragging your finger on the screen.

Pan mode

You switch from Rotate mode to Pan mode by tapping **Camera** on the menu or by tapping the rotate icon at the top of the screen.

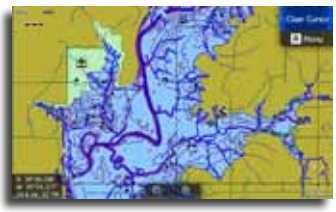
The Rotate mode allows you to view the entire 3D chart, regardless of vessel position.

You can rotate and move the camera (pan) away from your vessel. You switch between panning and rotating camera motion by tapping the icons on the right side of the chart panel.

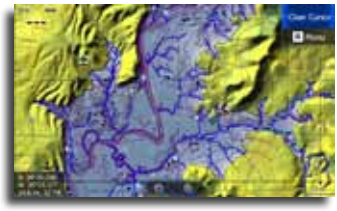
When pan is selected, you move the camera away from the vessel and around in the chart by tapping and dragging on the screen. When you remove your finger from the chart the view will remain in the selected position.

Imagery

Lowrance mapping can be displayed in two different imagery styles, either as 2D basic mapping style, or with shaded relief presenting chart including terrain imaging.



2D mapping



Shaded relief

Chart detail

Low

This is the basic level of information that includes information that is required in all geographic areas. It is not intended to be sufficient for safe navigation.

Medium

This is the minimum information sufficient for navigation

Full

This is all available information for the chart in use

Categories

Insight charts includes several categories and sub-categories that you can turn on/off individually depending on which information you want to see on your display.

Displaying information about chart and chart objects

When you tap a chart item, a waypoint, a route or a target, basic information about the item will appear on the screen and an Info button will appear on the page menu.

Tap the onscreen basic information display or tap the **Info** button to view all available information for the item.

→ ***Note:*** Popup information has to be enabled to see basic item information.

Selecting chart data

This unit can use built-in Lowrance map data as well as Navionics, Fishing Hotspots, legacy LakeMaster and other third-party mapping cards. Tap **Change to Navionics** or **Change to Lowrance** to switch chart data the unit is using.

→ ***Note:*** The system will not automatically switch to embedded cartography if the SD card is removed. A low-resolution chart will be displayed until you re-insert the SD card or manually switch back to embedded cartography. When a third-party mapping card is inserted, the system will prompt you to switch to SD card cartography, if the unit is not in the correct chart mode.

Chart overlay

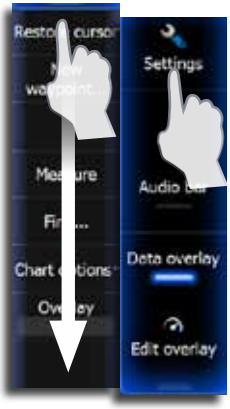
Radar, StructureMap and weather information can be displayed as overlay on the chart page.

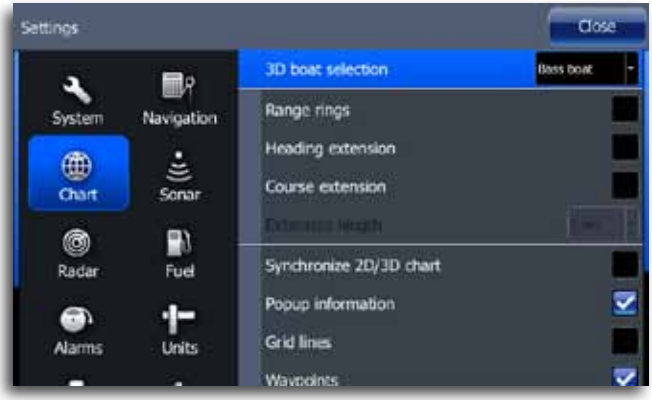
→ ***Note:*** Weather overlay currently is only available in the United States.

When radar, weather or StructureMap overlay is selected, the chart context menu will be expanded to include basic functions for the selected overlay.

Radar, StructureMap and SIRIUS weather functions are described in separate sections in this manual.

Chart Settings





3D boat selection

You can select different boat icons that will be used as the current position symbol when the chart is in 3D mode.

Range Rings

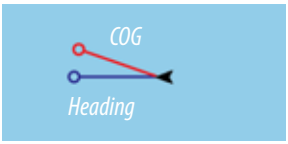
You can turn on/off range rings from the chart settings menu.

The range rings can be used to show the distance from your vessel to other chart objects. The range scale is set automatically by the system to suit the chart scale.

Heading and Course extension

The length of the extension lines are either set as a fixed distance, or to indicate the distance the vessel will move in the selected time period.

Vessel heading extension is aligned with direction the vessel's bow is pointing. COG extension points the direction the vessel is moving. If there is no heading sensor, heading will default to the COG value.



For other vessels COG data is included in the message received from the AIS system.

Pop-up information

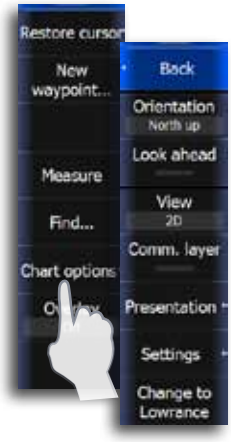
Selects whether basic information for chart items shall be displayed when you tap the item.

Grid lines

Turns on/off viewing of longitude and latitude grid lines on the chart.

Waypoints, routes and trails

You can turn on/off viewing of waypoints, routes and trails on the chart.



Navionics chart options

To view Navionics data, you must insert a Navionics mapping card into the SD card slot on the front of the unit. The system will prompt you to switch to SD card cartography when a card is inserted..

Orientation

Several options are available for how the chart is rotated on the page. The chart orientation symbol in the upper right corner of the page indicates the north direction.

Look ahead

This option centers the chart slightly forward of your vessel so you can maximize your view ahead.

View

The Navionics chart database provides you with detailed coastal cartography, with 2D and 3D view options.

- 2D presents chart information in a basic mapping mode with Navionics details
- 3D provides a three dimensional graphical view of land and sea contours

Synchronize 2D/3D chart

Links the position shown on one chart with the position shown on the other chart when a 2D and a 3D chart are shown side by side. You can turn on/off Synchronize 2D/3D from the chart settings menu when Navionics is the selected chart data.

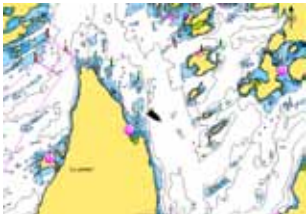
Community layer

Turns on/off viewing of user generated data downloaded from the Navionics website.

Presentation

Shading

Shading adds terrain information to the chart.



Traditional 2D chart

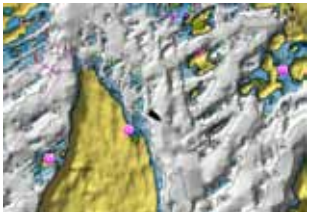
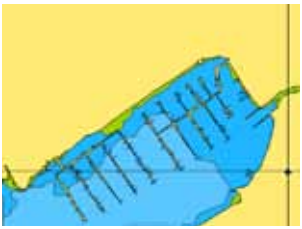


Chart with shading

Photo overlay

Photo overlay enables you to view satellite photo images of an area as an overlay on the chart. The availability of such photos is limited to certain regions and only available on certain Navionics mapping cards. You can view photo overlays in either 2D or 3D modes.



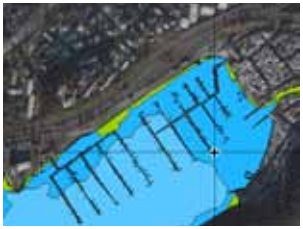
No Photo overlay

Photo overlay, land only

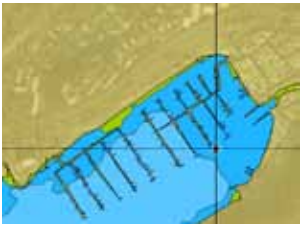
Full Photo overlay

Photo transparency

The Photo transparency sets the opaqueness of the photo overlay. With minimum transparency settings the chart details will be almost hidden by the photo.



Minimum transparency



Maximum transparency

Navionics Fish'n Chip

This unit supports Navionics Fish'n Chip (US only) chart feature.

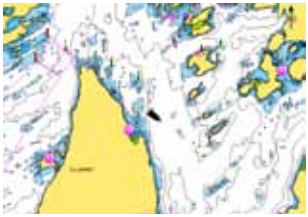
For more information, see www.navionics.com.

Change to Lowrance

Switches map display from Navionics SD card data to Lowrance mapping data.

Navionics settings

Optional settings for Navionics charts



Traditional 2D chart

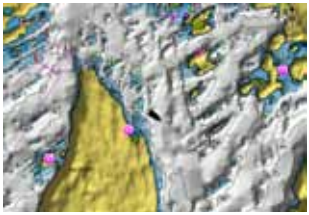


Chart with shading

Colored Seabed Areas

Colors different parts of the seabed to provide better definition of seabed composition.

Annotation

Determines what area information, such as names of locations and notes of areas, is available on display.

Presentation type

Provides marine charting information such as symbols, colors of the navigation chart and wording for either International or US presentation types.

Chart details

Provides you with different levels of geographical layer information.

Safety depth

The Navionics charts uses different shades of blue to distinguish between shallow and deep water.

The safety depth sets the limit for which depths that shall be drawn without blue shading.

Contours depth

Determines which contours you see on the chart down to the selected safety depth value.

4 Waypoints, routes & trails

The waypoints, route and trails screens

The Waypoints, Routes and Trails dialogs give access to advanced edit functions and settings for all these items available on your system. Waypoint, route and trail screens are accessed from the homescreen or by pressing and holding the **Waypoint** key.

The edit and settings options are accessed from the menu or by pressing and holding the unit's dedicated waypoint key.

Waypoints

A waypoint is a user-generated mark positioned on a chart or radar image. Each waypoint has an exact position with latitude and longitude coordinates.

A waypoint is used to mark a position you later may want to return to. Two or more waypoints can also be combined to create a route.

Positioning waypoints

Placing a waypoint at vessel position

With the cursor inactive, you can position a waypoint at the vessel position from any page by pressing the dedicated **WAYPOINT** key twice.

Using the cursor to position waypoints

On the chart page, you can place a waypoint at a selected position by tapping the screen and then tapping **New waypoint** on the menu. Tap **Save** on the waypoint dialog to create the waypoint.

→ ***Note:*** With the cursor active, you can press the physical **WAYPOINT** key twice to save a waypoint at the cursor position.

Edit waypoints

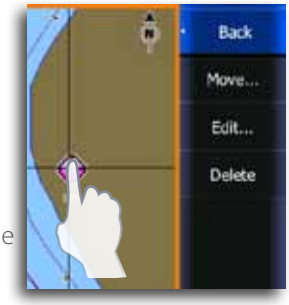
A selected waypoint can be moved, edited or deleted from the chart page menu or from the waypoint dialog.

Using the edit waypoint dialog

This dialog is activated by tapping the waypoint and then tapping the waypoint name display on the screen.

The dialog can also be activated from the Waypoint list.

Moving a waypoint by tapping the screen



1. Tap the waypoint
   - The waypoint name will appear on the page menu
2. Tap the waypoint name
3. Tap **Move** on the menu
   - The waypoint icon will change to indicate moving mode
4. Drag the waypoint to its new position
5. Confirm the new position by tapping **Save** on the menu

Waypoint alarm settings

You can set an alarm radius for each waypoint you create.

→ ***Note:*** The waypoint radius alarm must be toggled ON in the alarm screen to activate an alarm when your vessel comes within the defined radius.

Routes

A route consists of a series of routepoints entered in the order that you want to navigate them.

When you tap on an existing route the route name will be displayed.

Creating new route from chart page

Routes can be created directly from the chart or by inserting waypoints from the routes dialog.

1. Tap the chart screen to activate the cursor
2. Tap **New** on the page menu
3. Tap **New route**
4. Tap the screen to position routepoints
5. Tap **Save** on the menu

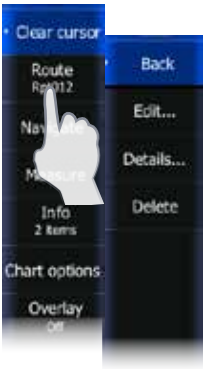
Creating routes using existing waypoints

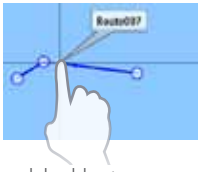
1. Access the routes dialog
2. Tap **New**
3. Tap **Create using route list**
4. Tap the new route window (shown below)
5. Tap **Insert**
6. Tap the desired waypoint
7. Repeat Steps 4, 5 and 6 until all points have been placed
8. Tap **Save**

New route window

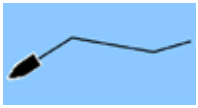
Edit a route

A route and a waypoint can only be edited from the chart page when the item is selected.





1. Tap the route
2. Tap the route name on the menu
3. Tap **Edit**
4. Tap the screen to add routepoints
   - If you tap on a leg a new point will be added between existing routepoints
   - To move existing routepoints, drag them to the desired location
5. Tap **Save** on the menu



Trails

A trail is a graphical presentation of the historical path of the vessel, allowing you to retrace where you have traveled. A trail can be converted to a route in the Trail screen, as described later in this section.

From the factory, the system is set to automatically draw a trail. The system will continue to record the trail until the trail length reaches the maximum trail point setting, and will then automatically begin overwriting the oldest trail points.

The automatic trail function can be turned off from the Trail screen described later in this section.

Creating a new trail

Tap **New** on the Trails dialog and tap **Save** to create a new trail. Trail settings are defined on the Trail Settings dialog described below.

Trail settings

The trail is made up of a series of trail points connected by line segments.

You can select to record trail points based on time, distance or by letting the unit position a point automatically when a course change is registered.

→ ***Note:*** The Trails option must also be turned ON in the chart settings to be visible.

5 Navigating

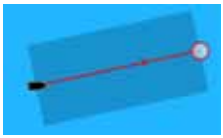
The navigation function included in your unit allows you to navigate towards the cursor position, a waypoint or along a predefined route.

For information about positioning waypoints and creating routes, refer to "Waypoints, routes & trails" on page 31.

Goto cursor

You can navigate to the cursor from the chart or radar pages by activating the cursor and tapping **Goto cursor** on the menu.

→ ***Note:*** The Goto cursor option will only be available when the cursor is active on a page.



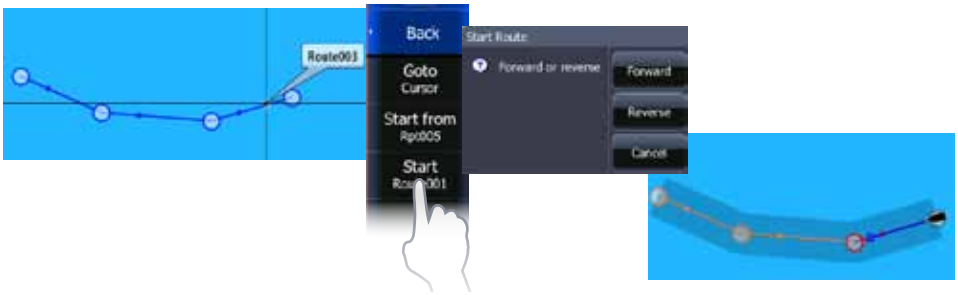
Navigating on the chart

Navigate a route

You can start navigating a route by tapping the route and then tapping Navigate on the menu.

Routes can be navigated forward, from the first routepoint to the last routepoint, or in reverse starting with the last routepoint and finishing with the first routepoint.

When navigating a route, the active route leg will be colored red. The red arrow on the route leg shows the selected navigation method (forward or reverse) you are using to navigate the route. Upcoming route legs are colored orange.



When route navigation is started, the menu will expand showing options for skipping a waypoint, or for restarting the route from current vessel position.

Selecting start point

You can navigate a route, starting from any routepoint, by positioning the cursor over the selected routepoint and tapping the routepoint name on the menu. You can start navigating the route from the first or last routepoint (forward or reverse), or from a selected routepoint.

Cancel navigation

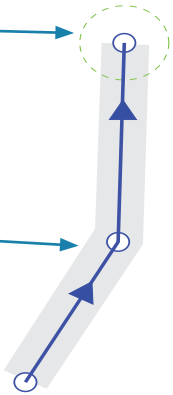
You cancel navigation from the **Navigation** menu.

Navigation settings panel

Arrival radius

Sets an invisible circle around the destination waypoint.

The vessel is considered arrived at the waypoint when it is within this radius.



XTE limit (Cross track error)

This parameter defines the vessel's accepted offset distance from the leg. If the vessel goes beyond this limit an alarm will be activated.

XTE alarm (Cross track error)

Turns on/off the XTE alarm.

Trails

Opens the Trails dialog where trails settings can be adjusted and trails can be converted into routes for navigation.

Create route

1. Select a trail on the Trails dialog
2. Tap **Create route**
   - When the route has been created, the Edit routes dialog will appear.
3. Tap **Start**
4. Tap the way you want to navigate the route (Forward or Reverse)

Logging Type

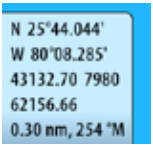
You can select to record trail points based on time, distance or by letting the unit position a point automatically when a course change is registered.

Phantom Loran

Estimates Loran TDs based on GPS position, the selected GRI and preferred station.

Loran settings

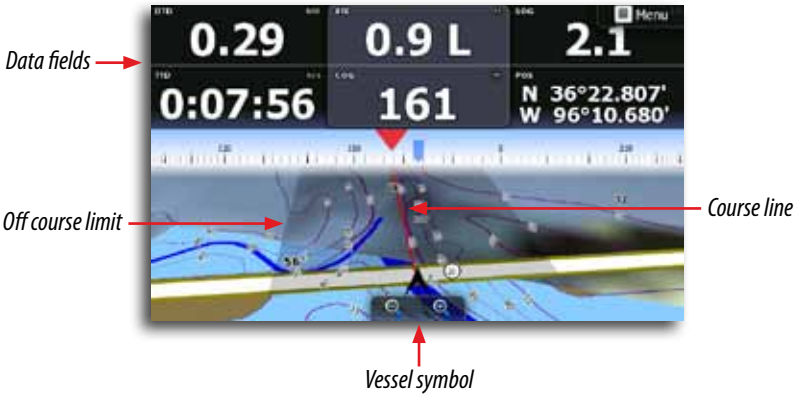
Defines Loran chains (GRI) and preferred station for waypoint entry and cursor position. The graphic example shows cursor position window with Loran position information.



For more information refer to your Loran system documentation.

Steer page

The Steer page can be used to display information when you are navigating.



Data fields

The Steer page displays the following information:

DTD	Distance to destination
XTE	Cross track error
SOG	Speed over ground
TTD	Time to destination
COG	Course over ground
POS	Position

The course line

When traveling on a route the course line shows the intended course from one waypoint towards the next. When navigating towards a waypoint (cursor position, MOB or an entered lat/lon position), the course line will show the intended course from the point at which navigation was started towards the next waypoint.

Vessel symbol

The vessel symbol indicates distance and bearing relative to the intended course.

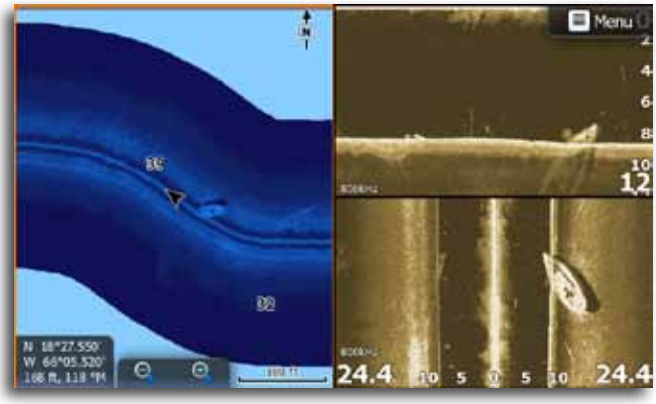
Off course limit

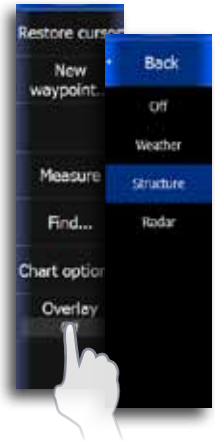
If the XTE exceeds the defined off course limit this will be indicated with a red arrow including the distance from the track line.

If the off course alarm is enabled, the alarm will activate if the XTE exceeds the defined off course limit.

6 StructureMap™

StructureMap™ is a tool that allows you to overlay SideScan sonar returns on top of the chart, giving you a birds-eye view of underwater structure below and beside your boat. StructureMap makes it easier for you to visualize the underwater environment in relation to your position and aids the user in interpreting SideScan sonar images.





→ ***Note:*** GPS only units can only use the StructureMap feature by accessing a StructureMap (.smf) file on a SD card, or by connecting the unit to a Structurescan source via Ethernet.

Turning on StructureMap overlay

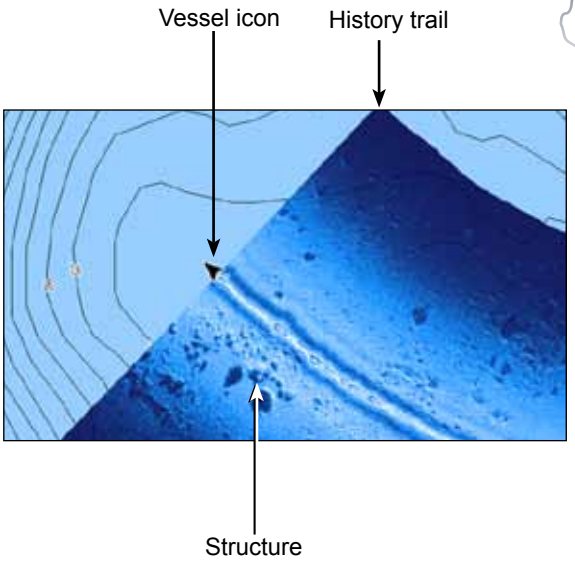
You can view StructureMap data by turning on Structure overlay from the Chart menu.

Selecting Structure Source

StructureMap can be used in Live mode or Saved mode. Live mode allows you to view real-time StructureMap data on the screen. Saved mode is used to display StructureMap data previously saved to a SD card.

Live mode

Displays the last few minutes of the Side Imaging history as a trail behind the vessel icon. The length of this trail will vary depending on the Side Imaging and Down Imaging range settings. The higher the range settings the longer the history length that will show up behind the vessel icon. Typically, it will display the last 4-5 minutes of recording. Live mode allows the user to quickly identify interesting areas of the lake and how they relate to vessel position. It also allows the user to scroll back and zoom in on a recently scanned areas of the lake to look at additional details of what was scanned. Live mode does not save any data. If the unit is turned off, all recent sonar history is lost.



Saved mode

Displays StructureMap (.smf) files that have been created from structure sonar log (.sl2) files. Saved mode is used to view a map of the underwater environment that can be reviewed and examined either on or off of the water. It can be used when revisiting an area that has already been scanned in order to assist the user in positioning the vessel or locating specific points of interest.

➔ ***NOTE:*** If there is more than one StructureMap of the same area on the same SD card, the maps will overlap on your screen. If you want to have more than one map of the same area, you should put the maps on separate SD cards.

Structure options

Range

Controls the width of the SideScan history trail. Adjust the range properly for the depth of the water. The greater the range setting, the wider the StructureMap history trail; Lower range settings reduce the width of the history trail.

Transparency

Increases/decreases the visibility of Structure overlay so underlying chart detail may be revealed/obscured. This is helpful when using marine mapping cards.

Minimum transparency

Maximum transparency

Palette

Several display palettes with varying degrees of color and brightness are available.

Contrast

Adjusts the brightness ratio between light and dark areas of the screen, making it easier to distinguish objects from the background.

Water column

Turns on/off the viewing of the StructureScan water column on StructureMap (only applicable in Live mode).

Frequency

StructureScan supports two frequencies. 455 kHz has excellent resolution and greater range, while 800 kHz provides better definition at shallower depths.

Noise Rejection

Monitors the effects noise (boat pumps, water conditions, engine ignition systems, etc.) has on your display, and then filters out undesired signals.

Logging Structure data

To record structure data, steer your boat over an area and select **Log Sonar** from the Structure options menu.

→ ***NOTE:*** For best results, we recommend turning off Auto Range when recording a structure sonar log (.sl2).

Converting files

To create a StructureMap file you must convert a structure sonar log (.sl2) file to StructureMap format (.smf). This can be done automatically from the Sonar Log menu, or manually by converting logs from the Files menu. Due to the large size of StructureMap (.smf) files, we recommend using an SD card when recording StructureMaps.

To have structure sonar log (.sl2) files automatically converted to StructureMap file format (.smf), tap **Convert to map when complete** on the Sonar Log menu. The (.sl2) file will be converted to a (.smf) file when recording is stopped. You can convert logs after recording from the File utility. Refer to the Utilities section of this manual for more information.

➔ ***NOTE:*** Keep the size of your sonar logs to 100MB or less to allow for faster file conversion. Current file size is occasionally flashed on the screen during the recording process. You will not be able to use any of the unit's other functions while a file is being converted.

Accessing StructureMap files on SD card

All StructureMap files on your SD card will automatically appear on the screen when Saved mode is selected.

Using StructureMaps with mapping cards

StructureMap allows you to maintain full chart capability and can be used with embedded cartography as well as Navionics, Insight and other third-party charting cards compatible with HDS units.

Sharing files

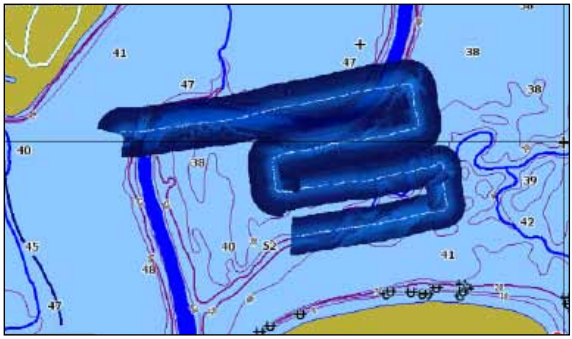
After structure sonar log (.sl2) files are converted to StructureMap (.smf) files, they can be saved to a SD card and used on other GPS capable HDS Gen 2 units without the need for the StructureScan module.

Show StructureMap (.smf) files

You can view StructureMap (.smf) files from the Files menu, which allows you to quickly see what area each StructureMap file covers.

Scanning Fishing areas

With the Structure Source set to the default Live mode, steer the boat over the desired location to scan the area. When conducting a side-by-side scan of an area, you will get a cleaner scan if you do not overlap history trails and you turn off auto ranging on the SideScan.



➔ ***NOTE:*** Optimal speed for viewing or logging StructureMap data is between 2-8 mph (3-12 kmh). Live mode is disabled for speeds greater than 10 mph.

Scanning tips

- To get a picture of taller structure (a wreck, etc) — don't drive over it. Steer the boat so the structure will be on the left or right side of your boat.
- Set your structure range to a significantly greater level (two-to-three times) than the water depth to ensure a complete scan and to maximize conversion accuracy.

7 The Instruments panels

The Info page instrument panel consists of multiple gauges that can be customized to display selected data. The instrument panel displays data on dashboards, and you can define up to ten dashboards within the instrument panel.

Tap the info page icon on the homescreen to display the info page instrument panel.

→ ***Note:*** To include fuel/engine information, engine and tank information has to be set using the Fuel utility. Refer to the Fuel section in this manual.

The dashboards

Three dashboard layouts are predefined to display gauges.

You can switch dashboards by tapping the left and right arrows in the upper left and upper right corners of the screen.

Dashboards also can be switched by tapping **Next** or **Prev** on the menu.

Vessel dashboard

Navigation dashboard

Angler dashboard

Customizing the Instrument panel

You can customize the Instrument panel by changing the data for each of the gauges in the dashboard, by changing the dashboard layout, and by adding new dashboards. You can also set limits of analog gauges.

All edit options are available from the Instrument panel menu.

Available editing options will depend on the data sources that are connected to your system.

Edit an Instrument dashboard

1. Select the dashboard you want to edit.
2. Tap **Edit** on the Instrument page menu
3. Tap the gauge you want to change. The selected gauge will be shaded in blue
4. Tap **Select info**
5. Tap a data category
6. Tap a data type
7. Tap **Save** on the menu

8 Using Video (9” and 12” units only)

The video function allows you to view videos or camera sources on your unit’s screen.

For information about how to connect the camera, see the separate Installation manual.

Tap the Video icon on the homescreen to access the Video page.

→ ***Note:*** The video images will not be shared via the network. You can only view the video on the unit connected to the video source.

The video page

The video image will be proportionally scaled to fit onto the video screen. Area not covered by the image will be colored black.

Setting up the video page

Adjusting the video image

You can optimize the video display by adjusting the video image settings. Default for all settings: 50%.

Mirroring the video image

Video input can be set to display a mirrored image. This setting can be helpful for rear-facing cameras used to back-down the vessel.

The video standard

This unit supports NTSC and PAL video. Check the local video standard or the standard of your cameras.

9 The Alarm system

This unit will continuously check for dangerous situations and system faults while the system is running. When an alarm situation occurs, an alarm message will pop up on the screen.

If you have enabled the siren, the alarm message will be followed by an audible alarm.

The alarm is recorded in the alarm history so you can see the details and take the appropriate corrective action.

The alarms dialog

The alarms can be setup in the Alarms dialog. This dialog also includes information about active alarms and alarm history.

The alarms dialog is accessed from the Utilities tab on the homescreen. Tap an alarm checkbox to activate the alarm.

Set limits

Sets thresholds for alarms that when exceeded will trigger the alarm. Thresholds are not used on all alarms. If an alarm supports thresholds, the Set Limit button will be active when the alarm is selected.

Type of messages

The messages are classified according to how the reported situation will affect your vessel. The following color codes are used:

Color	Importance
Red	Critical
Orange	Important
Yellow	Standard
Blue	Warning
Green	Light warning

Single alarms

A single alarm is displayed with the name of the alarm as the title, and with details for the alarm.

Multiple alarms

If more than one alarm is activated simultaneously, the alarm message will display a list of up to 3 alarms. The alarms are listed in the order they occur with the alarm activated first at the top. The remaining alarms are available in the Alarms dialog.

Acknowledging an alarm

The following options are available in the alarm dialog for acknowledging a message:

Option	Result
Close	Sets the alarm state to acknowledged, meaning that you are aware of the alarm condition. The siren will stop and the alarm dialog will be removed. The alarm will however remain active in the alarm listing until the reason for the alarm has been removed.
Disable	Disables the current alarm setting. The alarm will not show again unless you turn it back on in the Alarms dialog.

There is no time-out on the alarm message or siren. These remain until you acknowledge it or until the reason for the alarm is removed.

10 Utilities

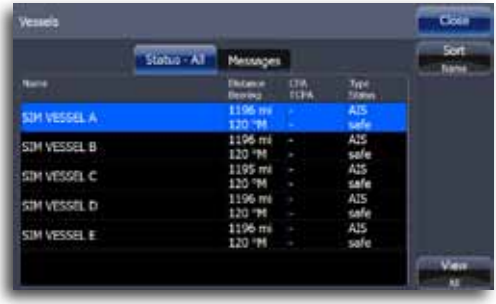
The Utilities tab includes options and tools that are not specific to any page. Utilities are accessed from the homescreen.

Tapping a utility will open a dialog giving you access to available options for the selected item. When you select a utility, a dialog will open on top of your previous page. When you close one of these dialogs the display will return to last active page.

Vessels

Status listing

List of all AIS, MARPA, and DSC vessels with available information.



Message listing

List of all messages received from other AIS vessels with time stamp.

Sun/moon

Displays sunrise, sunset, moonrise and moonset for a position based on entered date and the position's latitude/longitude.

Trip Calculator

Trip 1 / Trip 2

Displays voyage and engine information, with reset option for all data fields.

Today

Displays voyage information for the current date. All data fields will be automatically reset when the date changes.

Find

Search function for chart components.

Alarms

Active alarms

List of active alarms.

Alarm history

List of all alarms with time stamp.

Alarm settings

List of all available alarm options in the system, with current settings.

Waypoints/routes/trails

List of waypoints, routes and tracks with details.

Tap on the waypoint, route or track you wish to edit or delete.

Tides

Displays tide information for the tide station nearest to your vessel.

Tap the arrow panel buttons to change date, or tap the date field to access the calender function.

Available tide stations can be selected from the menu.

Satellites

Status page for active satellites.

WAAS (and EGNOS) differential position correction can be configured to On or OFF.

Files

File management system for logs, screenshots, waypoints, routes, tracks and settings.

Viewing screenshots

When viewing a screenshot full screen, you can drag your finger across the screen to view other screenshots. Press Zoom In to return to the file list.

Copying files to SD card

You can copy screenshots and logs to a SD card. You can also export system settings and waypoints, routes and trails to a SD card. Exporting files is covered in the Maintenance section.

Copying all files

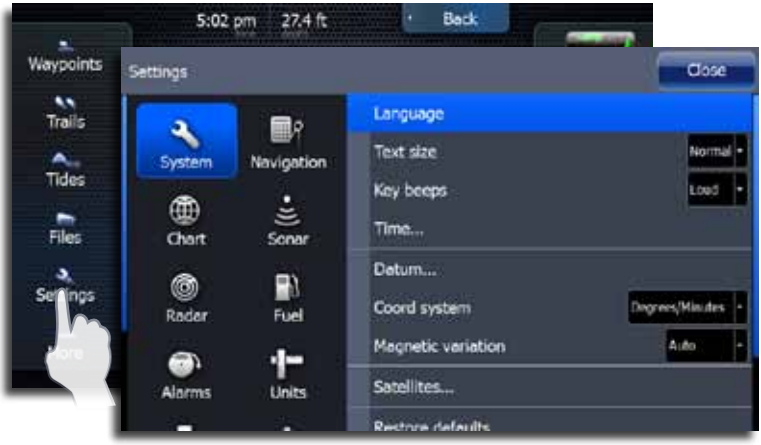
Settings

Opens the system settings menu.

11 System Settings

Changing system settings

The system settings provides access to advanced settings for your system and determines the way your system displays various user interface information on the display.



Language

Controls the language used on this unit for pages, menus and dialogs. Changing the language will make the unit restart.

Text size

Used for setting the text size on menus and dialogs.

Default setting: Normal

Key beeps

Controls the loudness of the beep sound when a key is pressed.

Default settings: Loud.

Time

Controls the local time zone offset, and the format of the time and date.

Datum

Most paper charts are made in the WGS84 format, which also is used by your unit. If your paper charts are in a different format, you can change the datum settings accordingly to match your paper charts.

Coordinate system

Defines the coordinate system used when position coordinates are entered and displayed.

Magnetic variation

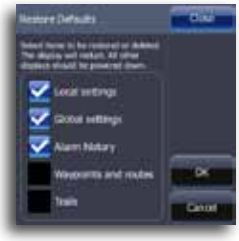
Magnetic variation is the difference between true bearings and magnetic bearings, caused by different location of the Geographic and the Magnetic north poles. Any local anomalies such as iron deposits might also affect the magnetic bearings.

When set to Auto, the system automatically converts magnetic north to true north. Select manual mode if you need to enter your own local magnetic variation.

Satellites

Illustrates the location of satellites in view and the quality of the unit's satellite lock.

Restore defaults



Allows you to select which settings are to be restored to their original factory settings.

1. Tap **Restore defaults**
2. Select items to be restored to factory defaults.
3. Tap **OK**

> ⚠ Warning: If waypoints, routes and trails are selected, they will be permanently deleted.

Advanced

Shows a dialog with more advanced settings.

About

Displays unit software information.

Units

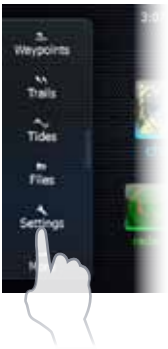
Controls unit of measure used for various data types. Units are accessed from the Settings panel.

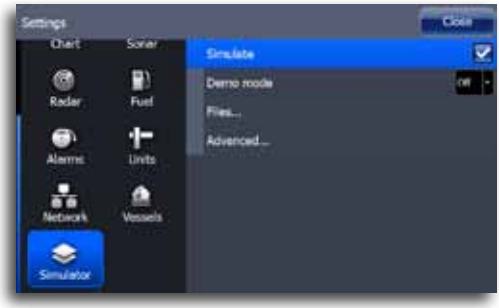
12 Using the simulator

Simulator mode

The simulation feature will let you see how the unit works in a stationary position and without being connected to the GPS, radar, etc.

You can use the simulator to help you become familiar with your unit before using it out on the water.





Demo mode

In this mode the unit automatically runs through the main features of the product.

If you press a key when demo mode is running, the demonstration will pause. After a time-out period, demo mode will resume.

Selecting simulator source files

You can select which data files to be used by the simulator.

A set of source files is included in your system, and you can import files by using an SD card inserted into the unit's card reader.

Advanced simulator settings

The advanced simulator settings allow you to define how to run the simulator. When the settings are saved these will be used as default when starting the simulator mode.

GPS source

Selects the source where simulated GPS data is generated.

Speed, Course and Route

Used to enter values when GPS source is set to Simulated course or Simulated route. Otherwise, GPS data including speed and course comes from the selected echosounder or radar files.

Set start position

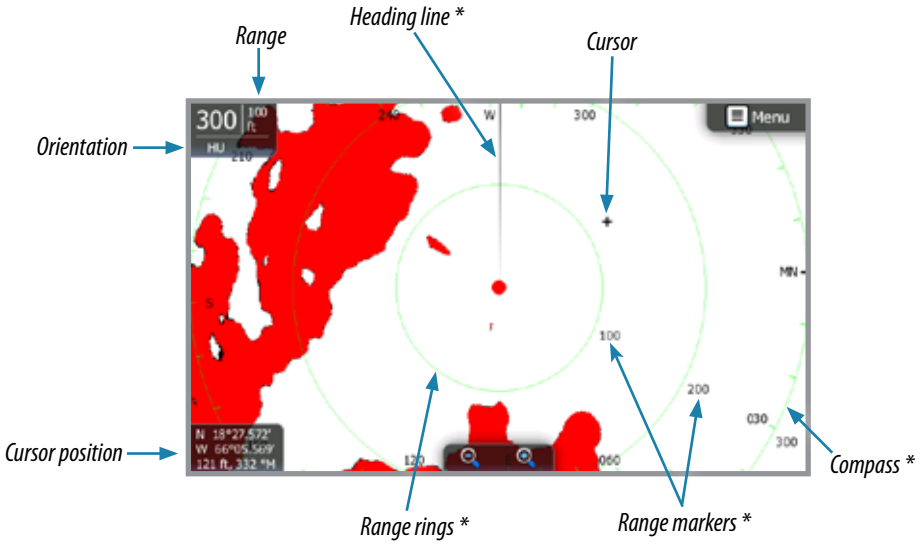
Moves the simulated vessel position to the cursor position.

13 Using the radar (optional)

The radar page can be set up as a full screen view or combined with other pages.

The radar image can also be displayed as an overlay to existing 2D chart views and 3D for Navionics. Refer to "Chart overlay" on page "Chart overlay" on page 26.

➔ ***Note:*** Radar overlay requires data from heading sensor.



* Optional radar symbology.

Radar operation modes

The radar's operational modes are controlled from your unit. The following modes are available:

Off

The power to the radar scanner is turned off

Standby

The power to the radar scanner is on, but the radar is not transmitting.

Transmit

The scanner is on and transmitting. Detected targets will be drawn on the radar PPI (Plan Position Indicator).

Adjusting range

You can use the zoom keys on the touchscreen or the dedicated zoom keys on the front of the unit to adjust the radar range.

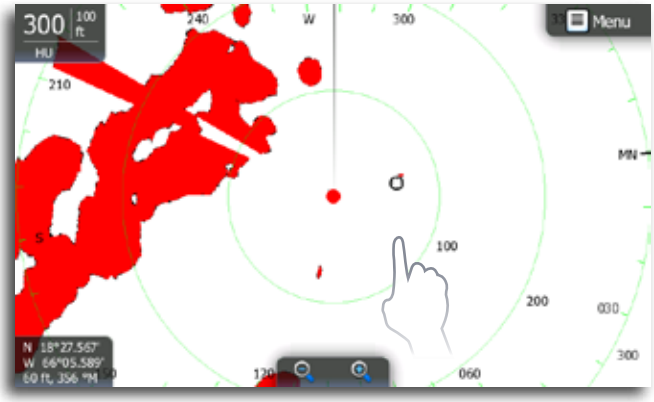
Using the cursor on the radar page

The cursor is by default not shown on the radar image.

When you tap the radar page the cursor and the cursor position window will be activated.

The cursor can be used to measure a distance to a target, and to select targets as described later in this section.

To remove the cursor and cursor elements from the panel, tap **Clear cursor** on the radar menu.



Press and hold to activate cursor assist mode.

Goto cursor

You can navigate to the cursor by tapping Goto cursor on the menu.

Saving a waypoint

You can save a waypoint at the cursor position by tapping the screen and then tapping New waypoint on the radar menu. Tap Save on the waypoint dialog to create the waypoint.

Press the dedicated waypoint key to save a waypoint at the vessel position.

→ ***Note:*** A heading sensor must be connected to the system to save a waypoint on the radar PPI.

Measuring range and bearing to a target

Range rings

The range rings are displayed at preset distances from the vessel based on the radar range.

You can use the range ring to estimate the distance to a radar echo.

No cursor

Radar menu

When the cursor is active, some features on the radar menu will be replaced with cursor mode features.

Tap **Clear cursor** to return to the normal radar menu.

Active cursor

Adjust

Gain

The gain controls the sensitivity of the radar receiver.

A higher gain makes the radar more sensitive to radar returns, allowing it to display weaker targets. If the gain is set too high, the image might be cluttered with background noise.

Gain has a manual and an automatic mode. You can only adjust the gain value in manual mode by vertically dragging the gain slide bar.

→ ***Note:*** Auto mode will work best in most conditions

Sea clutter

Sea clutter is used to filter the effect of random echo returns from waves or rough water near the vessel. When you increase Sea Clutter filtering the on-screen clutter caused by the echoes of waves will be reduced.

Sea clutter has a manual mode and two automatic modes (harbor, offshore). Select manual mode to make adjustments to Sea clutter.

Automatic modes use a combination of Gain/Sea Clutter settings best suited for the selected mode (Harbor, Offshore).

Rain Clutter

Rain clutter is used to reduce the effect of rain, snow or other weather conditions on the radar image.

Adjust the value by vertically dragging the rain clutter slide bar.

The value should not be increased too much as this may filter out real targets.

Interference rejection

Interference could be caused by radar signals from other radar units operating in the same frequency band.

A high setting will reduce the interference from other radars. The medium setting offers the best overall performance. When there is no interference, the low setting prevents you from missing weaker targets.

In order to not miss weak targets, the interference rejection should be set low when no interference exists.

Position

You can shift the radar PPI center to different positions on the radar page to see further in any direction.

The radar position can only be changed when the radar is transmitting.

Center

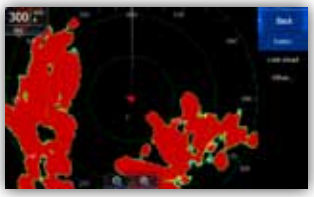
Default setting. The radar PPI center is centered on the radar panel.

Look Ahead

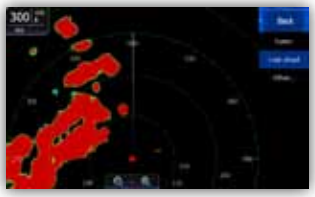
Moves the radar PPI center to the bottom of the panel to give maximum view ahead.

Offset

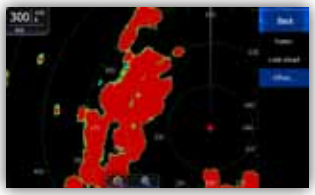
Allows you to move the PPI center to any location on the radar page.



Center



Look ahead



Custom offset

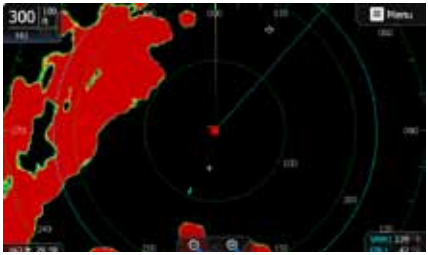
1. Select the offset option from the menu
2. Tap the screen where you want to position the radar center
3. Confirm the setting by tapping **Save offset** on the menu.

Symbology

Radar symbology can be turned ON/OFF collectively from the Radar menu, or individually as described in Radar settings later in this section..

EBL/VRM

The electronic bearing line (EBL) and variable range marker (VRM) allows quick measurements of range and bearing to vessels and landmasses within radar range. Two different EBL/VRMs can be placed on the radar image.



The EBL/VRM is by default positioned from the center of the vessel.

It is however possible to offset the reference point to any selected position on the radar image.

You can position EBL/VRM by using the cursor, and edit the marker position as described below.

When positioned, you can quickly turn the EBL/VRM on/off by tapping the desired EBL/VRM on the menu.

Defining an EBL/VRM marker

1. Ensure that the cursor is not active on the radar page
2. Tap EBL/VRM on the radar menu
3. Select an EBL/VRM.
4. Tap adjust to select EBL/VRM position
5. Drag the EBL/VRM into the desired location
6. Tap Save EBL/VRM

Quick EBL/VRM marker positioning by using the cursor

1. Tap the radar page to position the cursor
2. Tap Place EBL/VRM1 or EBL/VRM2
   - The EBL line and the VRM circle will be positioned according to the cursor position
3. Tap the EBL/VRM menu button again to reposition the EBL/VRM.

EBL/VRM settings

Adjust

Tap **Adjust** and drag your finger in any direction on the screen to resize the VRM and change the location of the EBL.

Set offset

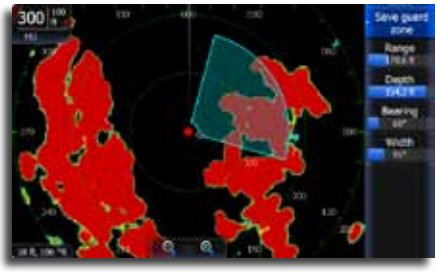
Used to change the PPI center of the EBL/VRM. Tap **Set offset** and tap the desired location on the screen.

Data box

Turns on/off onscreen EBL/VRM information box.

Setting a guard zone around your vessel

A guard zone is an area (either circular or a sector) that you can define on the radar image. When activated, an alarm will alert you when a radar target enters or exits the zone.



Defining a guard zone

1. Tap Guard Zone on the radar menu
2. Tap one of the guard zones
3. Tap **Adjust** and tap and drag on the screen to position the guard zone
4. Save the position by tapping Save guard zone on the menu.

Sensitivity

The guard zone sensitivity can be adjusted to eliminate alarms for small targets.

Shape

You can choose whether the guard zone has a circular or sector shape.

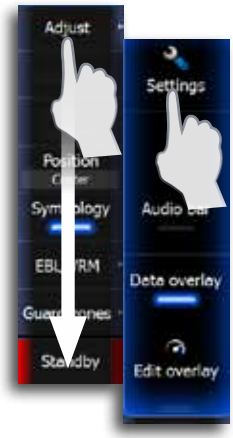
Adjust

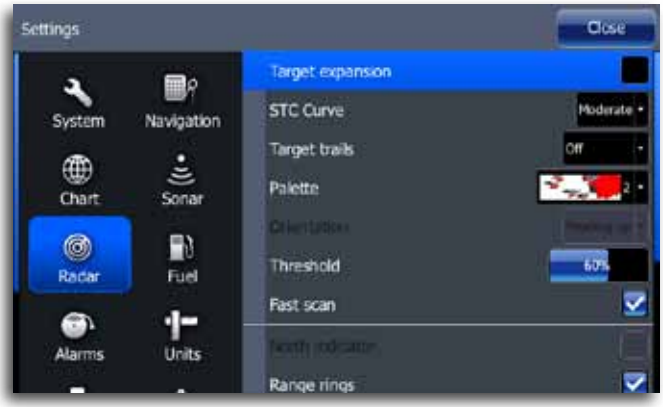
Used to position the guard zone. Range, depth, bearing and width values are adjusted as you tap and drag on the screen.

Alarm when

An alarm will be activated when a radar target breaches the guard zone limits. You can select if the alarm will be activated when the target enters or exits the zone.

Radar Settings menu





Target expansion

Increases signal processing to provide larger target returns for better visibility on the screen.

STC curve

The STC (Sensitivity Time Control) controls the sensitivity of the radar signal close to your vessel. Your selection should be based on the current sea conditions.

➔ ***Note:*** When a 4G broadband radar is installed, beam sharpening is enabled, resulting in 2X the azimuth resolution — similar to a three-foot length array.

Target trails

Turns on/off shaded echoes of each radar target making it easier to assess the movement of targets relative to your position.

Clearing target trails from the panel

When target trails are displayed on the panel, the radar menu will be expanded to include an option where you can clear target trails from your radar panel temporarily. The target trails will start to appear again unless you switch them off as described above.

Palette

Different colors (palettes) can be used to represent detail on your radar panel. You can select palettes from the Radar settings menu.

Radar orientation

Radar orientation is indicated on the upper left corner of the radar panel as either HU (Heading UP), NO (North Up) or CU (Course up).

Heading up

Rotates the radar image to display the current heading directly up on the radar image.

North up

Rotates the radar image so North is always at the top of the screen.

➔ ***Note:*** You must have a heading sensor connected to your system to use North up mode.

Course up

Rotates the radar image to display the current navigation course directly up. This option works only when the unit is navigating an active route. If you are not navigating an active route the heading up orientation will be used until the navigation function is started.

Threshold

The threshold sets required signal strength for the lowest radar signals. Radar returns below this limit will be filtered and not displayed. The default value is 30%.

Fast scan

(Broadband Radar™ only).

Increases the rotation speed of the radar scanner when the range is under 2nm. This option gives faster updates on target movements within this range.

North indicator

Turns on/off viewing of the North indicator on the radar page.

Range rings

Turns on/off viewing of Range rings on the radar page.

Range markers

Turns on/off viewing of Range markers on the radar page. Range rings must be turned on before Range markers can be enabled.

Compass

Turns on/off viewing of the compass overlay on the radar page.

Bearings

Used to select whether bearing will be measured in relation to True Magnetic North or your Relative heading.

MARPA

If your system includes a heading sensor that is connected to the radar, MARPA function (Mini Automatic Radar Plotting Aid) can be used to track up to ten radar targets.

MARPA tracking is an important tool for collision avoidance.

→ ***Note:*** You must have a heading sensor connected to your system to use MARPA.

MARPA target symbols

Your unit uses the target symbols shown below.

Symbol	Description
	Acquiring MARPA target. Typically it takes up to 10 full rotations of the scanner
	Tracking MARPA target, not moving or at anchor.
	Tracking and safe MARPA target with extension lines.
	Dangerous MARPA target. A target is defined as dangerous based on the CPA, TCPA and AIS Range settings. Refer to "Vessel alarms" on page 76.
	When no signals have been received within a time limit a target will be defined as lost. The target symbol represents the last valid position of the target before the reception of data was lost.
	Selected MARPA target, activated by tapping on the target icon. The target will return to default target symbol when the cursor is removed.

Tracking MARPA targets

1. Tap on the target on the radar panel
2. Select **Acquire target** from the menu
3. Repeat process for more targets

Once your targets are identified, it may take up to 10 radar sweeps to acquire and then track the target.

Cancelling target tracking

When targets are being tracked, the radar menu will expand to include options for cancelling individual targets or to stop the tracking function.

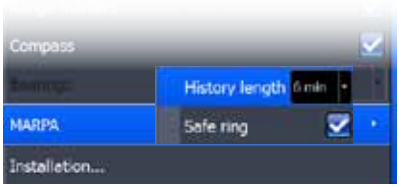
Cancel tracking individual targets by tapping the target and then tapping **Cancel target** on the menu.

Viewing target information

Tap the desired target and then tap Target details on the radar menu.

MARPA target settings

Several vessel settings define alarm limits and how the targets are displayed on your radar image.



Target trails and safe rings

You can define the length of the MARPA trail making it easier to follow target movement.

A circle can be added around the MARPA target to present the danger zone.

Vessels course extension line

Sets the length of the course extension line for your vessel and for other vessels.

The length of the extension line is either set as a fixed distance or a fixed time period to indicate the distance the vessel will move in the selected time period.

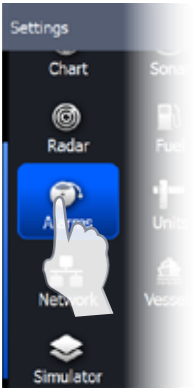
Defining dangerous vessels

You can define dangerous vessels based upon CPA (Closest Point of Approach) or TCPA (Time to Closest Point of Approach). When

Dangerous Vessels
Close
Vessels are considered dangerous when their closest point of approach is predicted to be less than the following distance, within the specified time.
Closest point of approach (ft)
00500
Save
Time to closest point of approach (mm:ss)
05:00
Cancel

your vessel comes within this distance from a vessel, the symbol will change to the "dangerous" target symbol. An alarm will be triggered if activated in the Alarm settings panel.

Vessel alarm settings



You can define several Vessels alarms to alert you if a target comes within predefined range limits, or if a previously identified target is lost.

Alarm ID	Description
Dangerous vessel	Controls whether an alarm shall be activated when a vessel comes within the predefined CPA or TCPA. See ***Defining dangerous vessels*** above. → ***Note:*** The check box controls whether the alarm pop-up box is displayed and if the siren will sound. The CPA and TCPA defines when a vessel is dangerous regardless of the enabled/disabled state.
MARPA target lost	Controls whether an alarm shall be activated when a MARPA target is lost
MARPA unavailable	Controls whether an alarm shall be activated if you do not have the required inputs for MARPA to work (valid GPS position and heading sensor connected to the radar)

Radar overlay

You can overlay the Radar image on the Chart. This can help you to easily interpret the radar image by correlating the radar targets with charted objects. When the radar overlay is selected, basic radar operational functions are available from the Chart page menu.

→ ***Note:*** You must have a heading sensor connected to your system to use Radar overlay.

Radar installation menu

Setup and configuration of the Broadband radar has been simplified compared to traditional pulse radars. There is no zero range (time delay), no warm up time, and no burn-in required.

Radar status

Displays scanner information, the availability and status of scanner features, and the status of radar peripherals.

Adjust bearing alignment

This is to align with the heading marker on the screen with the center line of the vessel, this will compensate for any slight mis-alignment of the scanner during installation. Any inaccuracy will be evident when using MARPA or chart overlay.

Point the boat to be perpendicular to the very end of a breakwater or peninsula. Adjust the bearing alignment setting, so that the heading marker and land mass intersect.

Adjust range offset

Eliminates the time lag between real radar returns and the time it takes data to be processed by the radar software. Range offset is also referred to as zero range and trigger delay.

Adjust antenna height

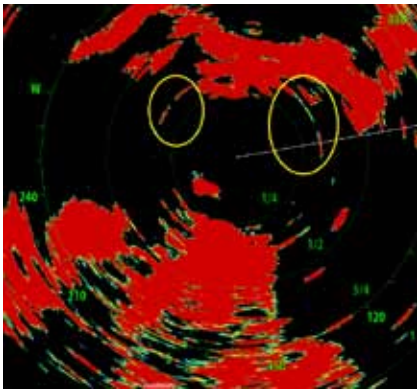
Set the radar scanner height. The Radar uses this value to calculate the correct STC settings.

Tune

Adjustments to this setting should only be performed by a trained radar technician.

Sidelobe suppression (Broadband radar only)

→ ***Note:*** This control should only be adjusted by experienced radar users. Target loss in harbour environments may occur if this control is not adjusted correctly.



Occasionally false target returns can occur adjacent to strong target returns such as large boats or container ports. This occurs because not all of the transmitted radar energy can be focused into a single beam by the radar antenna, a small amount energy is transmitted in other directions. This energy is referred to as sidelobe energy and occurs in all radar systems.

The returns caused by sidelobes tend to appear as arcs:

When the radar is mounted where there are metallic objects near the radar, sidelobe energy increases because the beam focus is degraded. The increased sidelobe returns can be eliminated using the Sidelobe Suppression control in the Radar installation menu.

By default this control is set to Auto and normally should not need to be adjusted. However, if there is significant metallic clutter around the radar, sidelobe suppression may need to be increased. The control should be adjusted as follows:

1. Set Radar range to between 1/2 nm to 1 nm and Sidelobe Suppression to Auto.
2. Take the vessel to a location where sidelobe returns are likely to be seen. Typically this would be near a large boat, container port, or metal bridge
3. Traverse the area until the strongest sidelobe returns are seen.
4. Change Auto sidelobe suppression to OFF then select and adjust the sidelobe suppression control until the sidelobe returns are just eliminated. You may need to monitor 5-10 radar sweeps to be sure they have been eliminated.
5. Traverse the area again and readjust if sidelobes returns still occur.
6. Exit the installation menu.

Restore radar to Factory Default

This can be used to revert all user adjustments to factory settings.

14 Using AIS

The marine Automatic Identification System (AIS) is a location and vessel information reporting system. It allows vessels equipped with AIS to automatically and dynamically share and regularly update their position, speed, course and other information such as vessel identity with similarly equipped vessels. Position is derived from the Global Positioning System (GPS) and communication between vessels is by Very High Frequency (VHF) digital transmissions.

If an AIS device is connected, any targets detected by the devices can be displayed and tracked.

AIS vessels on chart page

AIS targets can be displayed as overlay on radar and chart images, and this feature is an important tool for safe traveling and collision avoidance.

You can define alarms to notify you if an AIS target gets too close or if the target is lost.

Target symbols

The unit uses the AIS target symbols shown below:

Symbol	Description	
	Sleeping AIS target (not moving or at anchor).	
	Moving and safe AIS target with course extension line.	
	Dangerous AIS target, illustrated with bold line.	A target is defined as dangerous based on the CPA and TCPA settings.

	Lost AIS target.	When no signals have been received within a time limit a target will be defined as lost. The target symbol represents the last valid position of the target before the reception of data was lost.
	Selected AIS target, activated by tapping on a target symbol.	The target will return to default target symbol when the cursor is moved.

Viewing information about AIS targets

Selecting single AIS targets

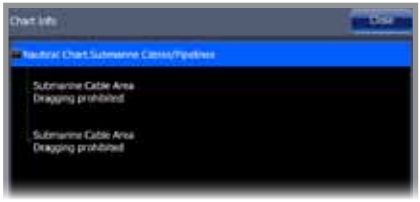
When you tap an AIS icon on the chart or radar panel the symbol will change to Selected target symbol, and the vessel name will be displayed.

You can display detailed information for a target by activating the menu when the target is selected.

Viewing information about all AIS targets

Chart pages

You can view information about all AIS targets within range of your vessel from the menu.



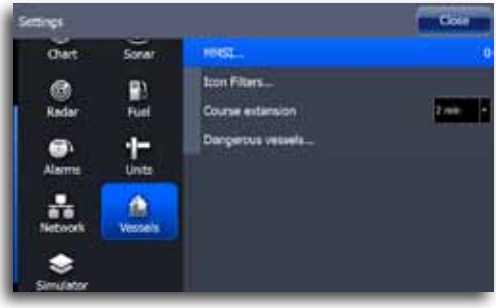
Vessel alarms

You can define several alarms to alert you if a target comes within predefined range limits, or if a previously identified target is lost. Vessel alarms can be set up from the Alarms utility.

Alarm ID	Description
Dangerous vessel	Controls whether an alarm shall be activated when a vessel comes within the predefined CPA or TCPA. ➔ ***Note:*** The check box controls whether the alarm pop-up box is displayed and if the siren will sound. The CPA and TCPA defines when a vessel is dangerous regardless of the enabled/disabled state.
AIS vessel lost	Sets the range for lost vessels. If a vessel is lost within this range this will trigger an alarm
Vessel message	Controls whether an alarm shall be activated when a message is received from an AIS target

The vessel settings panel

Vessel settings are accessed from the Utilities tab on the home-screen.



Your vessel's MMSI number

You need to have your own MMSI (Maritime Mobile Service Identity) number entered in the system to be able to receive addressed messages from AIS and DSC vessels.

It is also important to have the MMSI number entered to avoid seeing your own vessel as an AIS target on the chart.

→ ***Note:*** The Vessel message option in the alarm settings must be toggled on if any MMSI message shall be displayed.

Filtering the targets

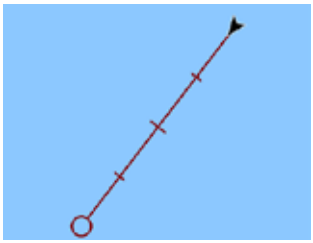
All targets are by default shown on the display if an AIS device is connected to the HDS system.

You can select to not show any targets, or to filter the icons based on security settings, distance and vessel speed.

The vessels extension lines

The length of the extension lines for your vessel and for other vessels can be set by the user.

The length of the extension lines is either set as a fixed distance, or to indicate the distance the vessel will move in the selected time period.



For own vessel heading information is read from active heading sensor, and COG information is as received from the active GPS.

For other vessels COG data is included in the message received from the AIS system.

Defining dangerous vessels

You can define an invisible guard zone around your vessel. When a target comes within this distance from your vessel, the symbol will change to the "dangerous" target symbol and an alarm will be triggered.

15 Networking

You can monitor the performance of NMEA 2000 and Ethernet networks and configure data sources, network devices, waypoint sharing and NMEA 0183 settings.

Auto configuration

After you have installed your NMEA 2000 network, or added/removed a device, you can allow the unit to select network settings by turning on all network devices and tapping **Auto configure** on the network settings menu.

Auto configure will reset data sources to default settings and remove all instances for networked devices.

→ ***Note:*** data sources should only be adjusted by advanced users. Auto configuration will work well for most situations.

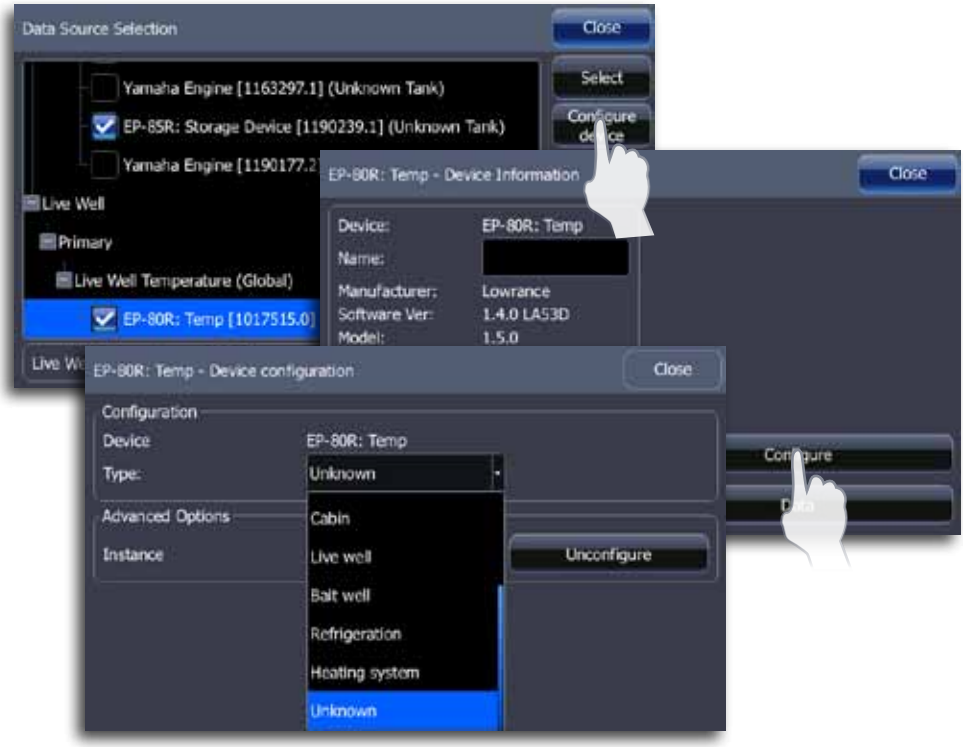
Data sources

Allows you to select the network device that will supply source data for a selected data type.

Tap Data sources to edit source names, change source scope and add/remove data source network instances.

Configuring data sources

Devices can be configured from the Data source menu or from the device list. Select the device from the list and tap **Configure**.



Scope

You can select the Global or Local setting for display units and data sources on the network.

Setting desired data sources to Global scope allows all display units set to Global scope to use the same data sources.

Setting one display unit on the network to Local scope allows you to select data sources independent of other global scope units on the network.

Device	Global	Local
Display units	Automatically uses data from global data sources When a data source is selected by other global scope units, all units switch to same data source	Data sources must be selected manually. Data source selection will not be affected when a different data source is selected on Global scope units
Data sources	Will automatically be selected as the data source for display units set to Global scope Can be selected manually as the data source by units set to Local scope	Can only be selected manually by display units

New

Used to create an instance of a data source.

Remove

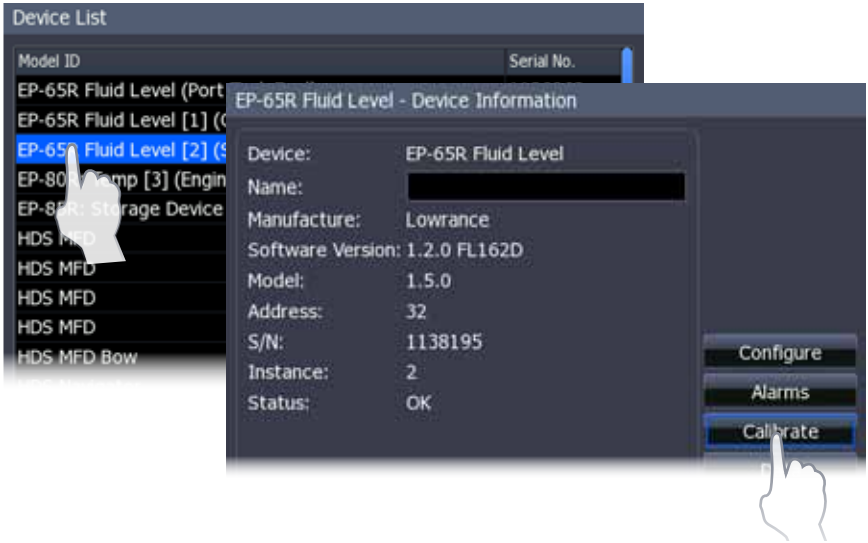
Allows you to remove a device instance from the network.

Renaming a data source

You can rename a data source to make it easier to distinguish between multiple data sources of the same type. Tap Rename and the touchscreen keyboard will appear.

Device list

Tap device list to view all devices connected to a NMEA 2000 network. You can configure and calibrate (where applicable) devices shown on the device list.



Calibrating devices

Devices that can be calibrated from the device list will have a Calibrate button on the Device information dialog.

Tap **Calibrate** and follow the onscreen instructions to calibrate the device.

→ ***Note:*** for more information on device calibration, refer to the documentation that came with your device.

Diagnostics

Used to view NMEA 2000 network information and the status of information shared between units. From the UDB tab, you can see IP addresses of attached Ethernet devices and if an Ethernet cable is connected or unplugged.

SIRIUS status (US only)

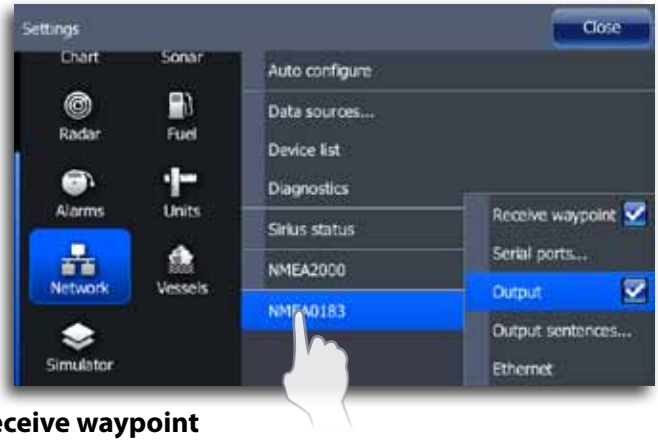
You can view your ESN number, SIRIUS subscription status and signal strength. You must have a SIRIUS weather and/or audio subscription to view SIRIUS information.

NMEA 2000

Turns on/off sharing/receiving of waypoints across a NMEA 2000 network. You can also turn on backlight sync, which allows all unit backlights to be adjusted from any display unit on the network.

NMEA 0183

Used to configure the display unit to send/receive NMEA 0183 data.



Receive waypoint

Turns on/off capability to receive waypoints across a NMEA 0183 network.

Serial ports

Configures communication ports to share data with other devices.

Output

Turns on/off NMEA 0183 data output transmissions.

Output sentences

Used to select the NMEA 0183 output sentences your unit will use when communicating with other NMEA 0183 devices. The default setting will work well with most configurations.

Ethernet

Displays the unit's IP address on the Ethernet network.

16 Fuel

The fuel utility allows your unit to calculate and monitor the overall fuel performance of your vessel. The Fuel utility requires a fuel used sensor, like a Lowrance Fuel Flow sensor, an engine interface with fuel used output capability, or a Lowrance Storage Device.

Vessel setup

You will use vessel setup to select the number of engines, the number of tanks and vessel's fuel capacity.

Refuel

Used to enter the amount of fuel added to the tanks and to calibrate the fuel flow or applicable sensor.

Filling the tank

After filling the tank, tap **Set to full** on the Refuel dialog and tap **OK**.

→ ***Note:*** When configuring the fuel utility, you must fill the tank to calibrate the fuel flow or engine interface.

Calibration

If you need to calibrate a tank, fill the tank, tap the **Set to full** checkbox, and proceed to tank calibration.

If you add fuel, but do not fill the tank, you must enter the amount of fuel added to the tank to ensure the accuracy of fuel economy calculations.

Fuel used

Allows you to view the amount of fuel used since you last refueled, fuel used on your current trip, and fuel used for a season.

Find fuel

Allows you to search for fueling stations near your location. Find fuel search results can be sorted by distance, cost and fuel type.

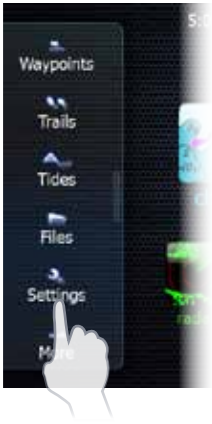
→ ***Note:*** You must have a LWX module and a SIRIUS data subscription to use the Find Fuel feature.

17 SIRIUS™ weather (North America only)

When connected to a Navico Weather Module, you can subscribe and include SIRIUS™ audio and SIRIUS™ Marine Weather Service on your system (North America only).

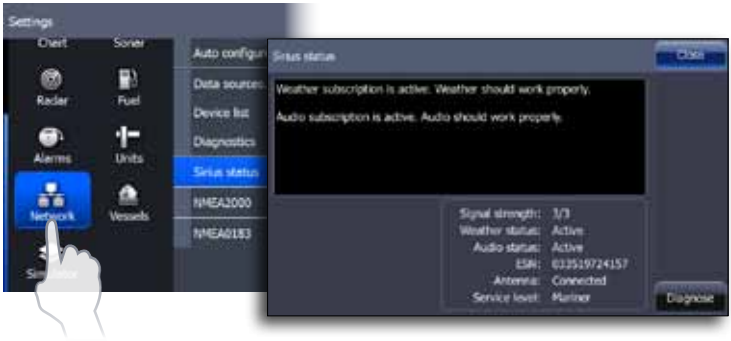
SIRIUS™ audio and weather service covers inland US waters and coastal areas into the Atlantic and Pacific oceans, Gulf of Mexico and the Caribbean Sea.

The audio and weather products received vary depending on your selected subscription package. For more information refer to www.siriusxm.com/marine weather.



SIRIUS™ status

When the weather module is connected to the system, you will get access to the SIRIUS™ status panel.



Signal strength is indicated as 1/3 (weak), 2/3 (good) or 3/3 (preferred).

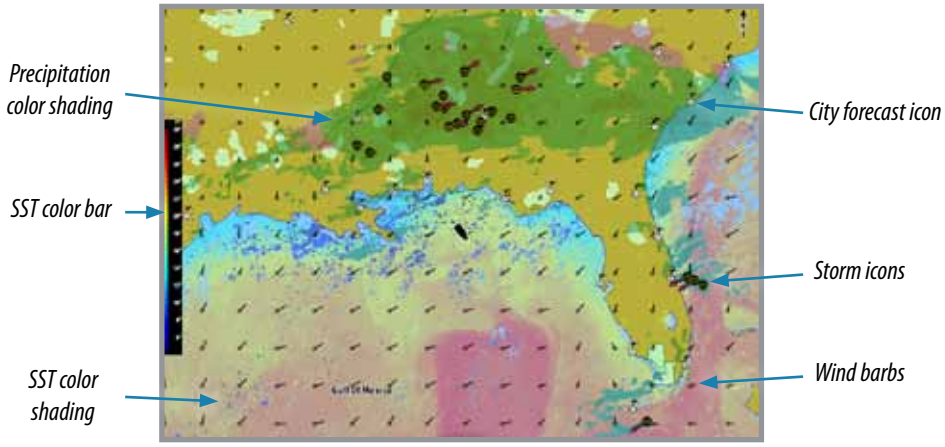
The ESN shows the electronic serial number for the weather module.

The weather display

The SIRIUS™ weather can be displayed as an overlay on your chart panel.

When weather overlay is selected, the chart menu will increase to show the available weather options.

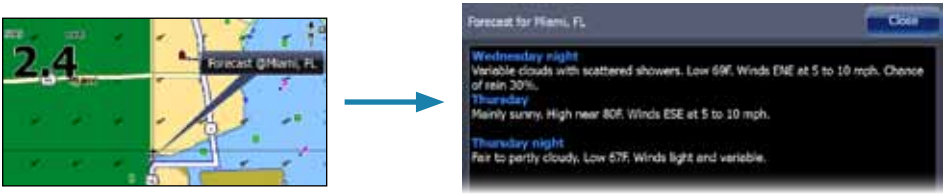
→ ***Note:*** Weather options will not be shown when the cursor is active.



Showing detailed weather information

When you tap a shaded weather area, available information will be shown in the cursor window.

When you tap a weather icon, detailed information about the observation will be displayed.


Forecast @Miami, FL
Forecast for Miami, FL
Close
Wednesday night
Variable clouds with scattered showers. Low 69F. Winds ENE at 5 to 10 mph. Chance of rain 30%.
Thursday
Mainly sunny. High near 80F. Winds ESE at 5 to 10 mph.
Thursday night
Fair to partly cloudy. Low 67F. Winds light and variable.

Weather symbology

Precipitation

Shades of color are used to show precipitation type and intensity. Darkest color indicates highest intensity.

Precipitation type	Color codes
Rain	From light green (light rain) - yellow - orange - to dark red (heavy rain)
Snow	Blue
Mixed	Pink

Sea surface temperature (SST)

Can be shown as color shading or text.

When color coding is selected, the SST color bar will be shown on the left side of the display.

You can define which temperature range that shall be color coded as described later in this section.

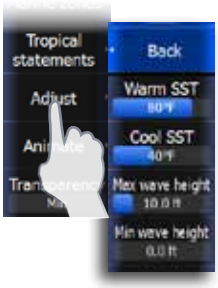
Wave indication

Colors are used to indicate forecasted wave height. Dark red indicate the highest waves, while blue are used for the lowest.

You can define which height range that shall be color coded as described later in this section.

Wind symbols

Length and rotation of the barbs indicate wind direction and speed.



Adjusting the color shading

You can define the sea surface temperature range and wave height color coding.

The temperature above warm and below cool values will be displayed as progressively darker red and darker blue.

Waves higher than the maximum value will be indicated with progressively darker red. Waves lower than the minimum value will not be color coded.

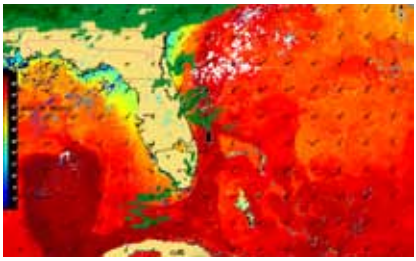
Weather icons

Several weather icons are available to show current or predicted weather conditions. You can tap an icon to display detailed weather information.

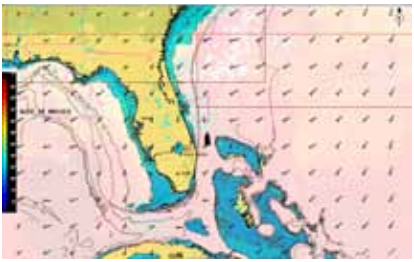
Icon	Description
	City forecast
	Surface observation
	Tropical storm tracking; past (grey) - present (red) - future (yellow)
	Hurricane (category 1-5) tracking; past (grey) - present (red) - future (yellow)
L L L	Tropical disturbance/depression tracking; past (grey) - present (red) - future (yellow)
	Storm attributes
	Lightning
	Watch box location and warning
	Marine zone location

Weather overlay transparency

The opaqueness of the weather overlay can be adjusted.



Min transparency

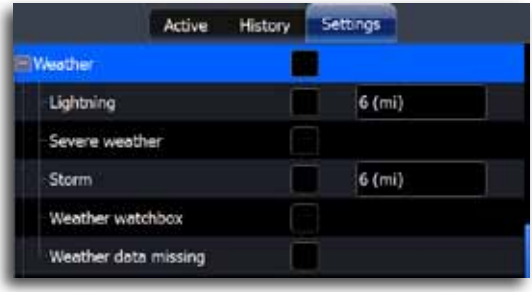


Max transparency

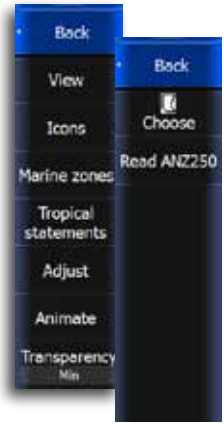
Weather alarms

You can setup the lightning or storm alarms to be within a certain range of your vessel.

You can also get an alarm if a severe weather forecast alarm is issued for your chosen marine zone.



A watchbox is defined by the National Weather Service. When the alarm is turned on you will get an alarm if your vessel is inside or moves into a watchbox. Access the Alarms utility to set up weather alarms.



Weather reports

Marine zone

SIRIUS™ service includes access to weather reports for all U.S. Marine Zones, with the exception of the high seas zones..

You can setup the system to read the forecast for a selected area.

Tap the selected zone, and tap **Accept** to confirm your selection.

Tropical statements

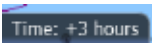
You can read tropical statements including information about tropical weather conditions. These statements are available for the entire Atlantic and the Eastern Pacific. You can access tropical statements from the Weather options menu.

Animating SIRIUS™ weather graphics

This unit records the weather information you have turned on, and this information can be used to animate past or future weather conditions. The amount of information available in the system depends on the amount of weather activity,- the more complex it is the less time will be available for animation.

You can animate the past or the future depending on which weather view you have turned on:

- if the precipitation overlay was turned on, you can animate for the past and only assume weather conditions in the immediate future.
- if the colored wave height overlay was turned on, you can animate the future (the predictions)



When activated the time for the current graphic animation will be displayed in the lower left corner of the chart panel.

18 Audio

When this unit is connected to a SonicHub server you can use your unit to control audio playback from iPod, iPhone, USB mass storage device (mp3) and AM/FM radio. Before playing FM radio through the SonicHub, you must purchase a marine-grade AM/FM antenna.

When connected to a LWX Satellite module you can subscribe and include SIRIUS™ audio. SIRIUS™ audio and weather service covers inland US waters and coastal areas into the Atlantic and Pacific oceans, Gulf of Mexico and the Caribbean Sea. The SIRIUS™ audio products received vary depending on your selected subscription package. For more information refer to www.siriusweather.com.

Before you can start using your equipment, it must be installed according to the Installation manual included with the unit.

Enabling audio

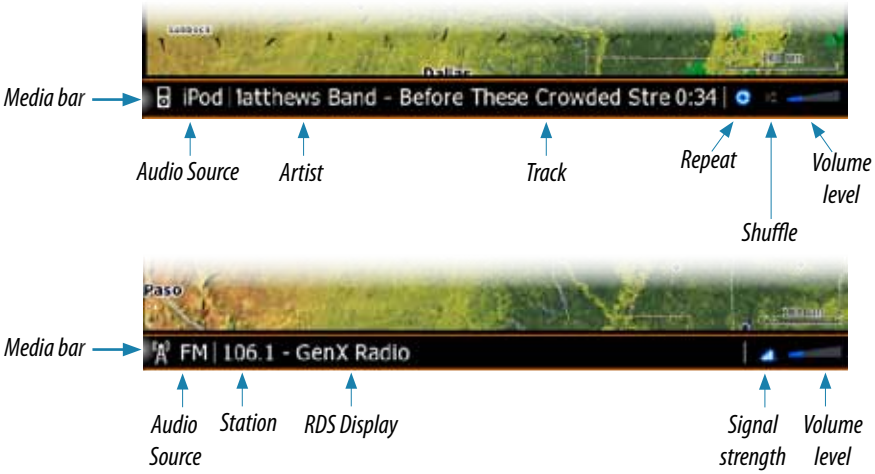
Tap **Audio bar** on the hidden system menu to enable audio.

The audio media bar

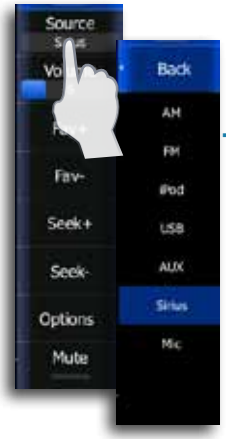
When audio is enabled, the media bar will appear at the bottom of the screen on all pages. The media bar varies from one audio source to another.

You switch focus between pages and the media bar by tapping on the selected panel.

The menus differ from one audio source to another as shown in the following sections.



Operating the audio source



Selecting the audio source

You switch between available audio sources from the Source menu.

→ ***Note:*** The Mic source selects a high voltage level input allowing you to broadcast loud hailer messages over the audio system.

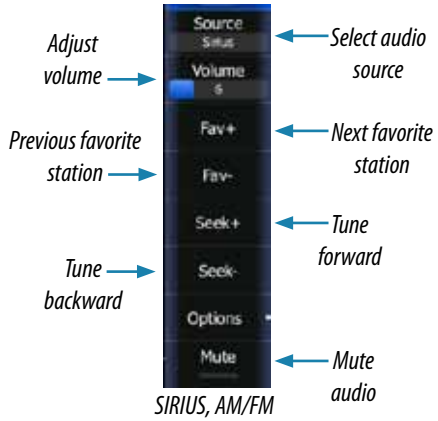
Adjusting the volume

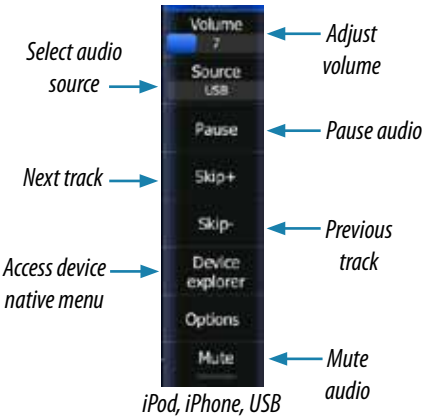
The volume is adjusted by pressing the dedicated zoom keys or by tapping **Volume** on the menu and then dragging your finger on the slide bar.

Muting

You can toggle muting on/off by tapping **Mute** on the menu.

Audio controls



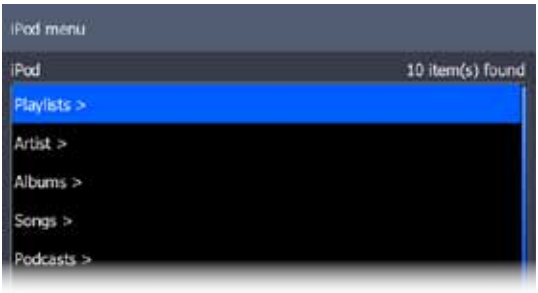


Shuffle and repeat

Shuffle and repeat are turned on/off from the audio menu. The icons will be blue when the function is turned on.

The playback menu

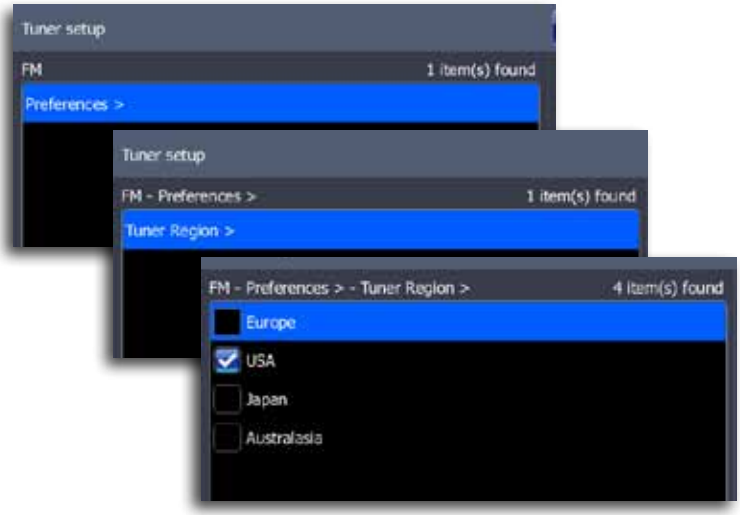
The playback menus includes an option giving access to the source's native menu or file structure, used for selecting tracks.



Using the FM/AM radio

Selecting AM/FM tuner region

Before playing FM or AM radio, you must select the appropriate AM and FM tuner regions for your location.



Saving a channel to the favorite list

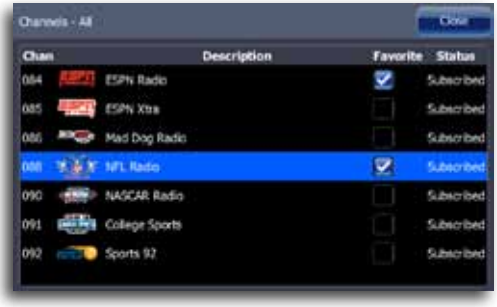
When the channel is tuned in, you can add the stations to your favorite list.

All favorite channels can be viewed, selected and deleted from within this list.

Using SIRIUS radio

The channels list

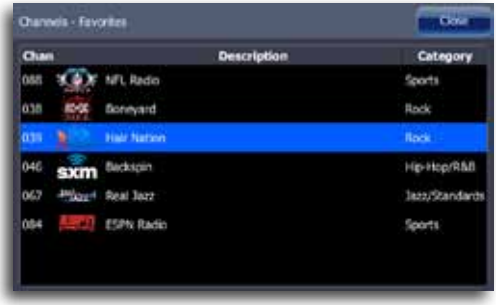
The channels list displays all available SIRIUS channels, whether or not you have a subscription for the channel.



The favorites list

You can create of list of your favorite SIRIUS channels from within the channels list. You will not be able to add unsubscribed channels.

When a favorite list is available, you scroll through the list by dragging the screen vertically.

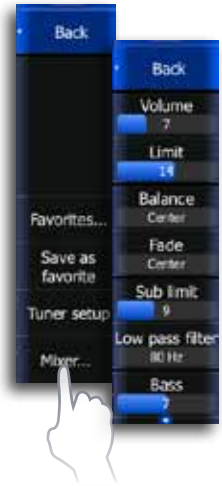


Locking channels

You can lock selected SIRIUS channels from being broadcast unless an unlock code is entered.

When the function is activated, a 4 digit code must be entered before the locking is activated.

The same code must be entered before a locked channel can be released.



Mixer

You can make adjustments to audio settings by tapping **Mixer** on the audio options menu.

19 Maintenance

Preventive maintenance

The unit does not contain any field serviceable components, therefore the operator is required to perform only a very limited amount of preventative maintenance.

It is recommended that you always fit the supplied protective sun cover when the unit is not in use.

Simple maintenance procedures

Cleaning the display unit

The supplied cleaning cloth should be used to clean the screen, where possible.

Where marks on the screen can't be removed by the cloth alone, use a 50/50 mixture of warm water and isopropyl alcohol to clean the screen. Avoid any contact with solvents (acetone, mineral turpentine etc.), Ammonia-based or vinegar-based cleaning products as they may damage the anti-glare layer, plastics bezel, or rubber keys.

To prevent UV damage to the plastic bezel and rubber keys, it is recommended that the sun cover be fitted when the unit is not in use for an extended period.

Checking the keys

Make sure that no keys are stuck in the down position. If one is stuck, wiggle the key to free it back to normal.

Checking the connectors

The connectors should be checked by visual inspection only.

Push the connector plugs into the connector, if the connector plugs are equipped with a lock; ensure that this is in the correct position.

Touchscreen Calibration

1. Turn the unit off
2. Press and hold the **WAYPOINT** key, then turn the unit on
3. Hold the **WAYPOINT** key during power on, until the calibration utility screen comes up
4. Touch crosshair shown on screen to perform nine points calibration
5. After successful calibration the unit will return to normal application screen

Software upgrades

The latest software for this unit will be available for download from our web site; www.lowrance.com

Detailed instructions for how to install the software will follow the upgrade files.

For more details about software upgrades, refer to the separate Installation manual.

Troubleshooting

Failure	Corrective action
One or more functions do not operate as normal	Restore defaults as described in "Restore defaults" on page 76
Normal operation is not possible and restoring defaults does not fix the problem	Switch off the unit, press and hold the zoom in and out keys and switch on the unit. Release the zoom keys after hearing a second beep confirming the reset

Backing up your system data

Waypoints, routes, trails that you create are filed on your system. It is recommended to regularly copy these files and your system settings files as part of your back-up routine.

The files are copied to a SD card inserted in the card slot on the front of your unit.

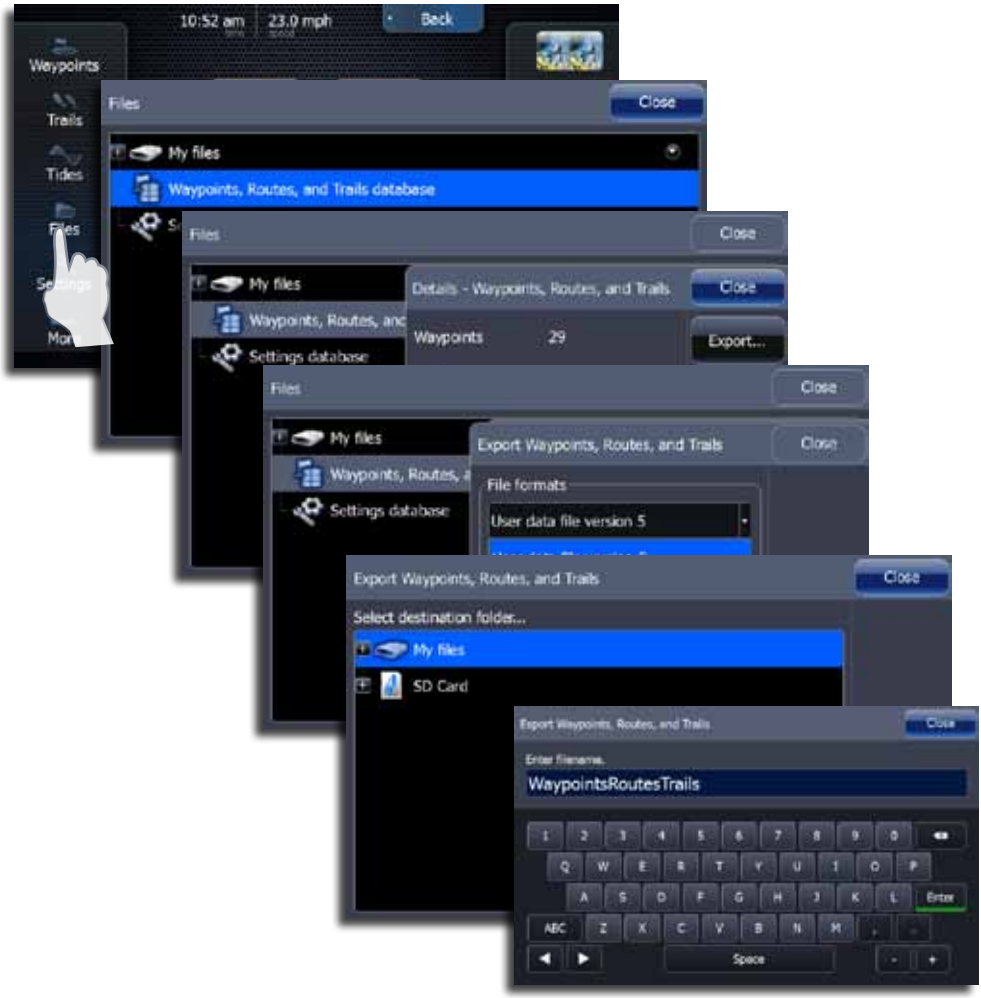
Different output formats are available:

User Data File version 4	This is best used when transferring data from one HDS system to another..
User Data file version 3 (with depth)	Can be used when transferring user data from an HDS system or Mark/Elite to a legacy Lowrance (LMS, LCX, etc)
User data file version 2 (no depth)	Can be used when transferring user data from an HDS system to a legacy Lowrance (LMS, LCX, etc)
GPX (GPS Exchange)	This is the format most used on the web that shares among most GPS systems in the world. Use this format if you are taking data to a competitor's unit.

The example shows how to export waypoints, routes and trails.

1. Access the Files utility
2. Tap **Waypoints, Routes and Trails database**
3. Tap **Export**
4. Select the desired file format
5. Select destination folder
6. Enter a name for exported file
7. Tap **Enter**

→ ***Note:*** To export waypoints, routes and trails to a non-HDS unit, select a compatible file format and export the file to a SD or microSD card that works with the non-HDS unit.



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